

# THE HOLIDAY SEASON

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## SEIF ACADEMY FOR SOCIAL IMPACT

### One step at a time towards building a global social impact with Mr. Devon Perry

A few months ago, I was pleased to be selected as the coach for SatSure through the SEIF Impact Academy after having shortlisted the company as my preferred start-up to work with.

My name is Devon Perry, I'm a Senior Director, working in Financial Crime within the Banking sector in Switzerland and the founder of Nezasa AG, a Successful and Innovative Travel start up.

During my career, I've been lucky enough to be involved in all types of companies of various sizes, maturities and types

Following my review of the company, it's deliverables and via my personal meetings with Abhishek, Co-Founder & Head EMEA, I have the impression of a company with nearly unlimited potential in terms of problem solving, some of the most complex issues we face (climate change, poverty among farmers etc.) and doing via a mix of data science and the data procured from satellites.

I have been extremely impressed with the professional attitude, the commitment to the company mission and the drive to focus their enviable skills on where the benefits will be best realized. The team seems very open to listening, learning and adapting to some of the lessons I have shared from my own journey and experiences. I am looking forward to work with them as they grow and to see them realize the potential that is clearly there; I believe in the both company's mission, their unique skill set and the potential social impact of their work. Happy to be on-board!



**Devon Landon Perry**

Credit Suisse Services AG, FCC Client  
Lifecycle Projects, FCFA, Switzerland.

# DRIVING SOCIAL INNOVATION THROUGH HATCH CO LABS

## Empowering Entrepreneurs to build social ventures with Mr. Andrea Monti

Hatch CoLab empowers entrepreneurs to build social ventures that solve the world's most challenging problems and drive social change. We are led by our desire to be a positive force in the world and we want a future where impact ventures are considered essential to foster equality, better humanity and sustainable world.

With our program, we provide the knowledge, tools and access to market and fundraising to scale up their impact-tech ventures. SatSure is demonstrating focus and commitment in raising the profile of the interaction between farmers and financial market.



**Mr. Andrea Monti**

Program Director at Hatch CoLab



Bringing innovation in a structured way to close an evident market gap, the opportunity that SatSure offers to the Agriculture industry is to establish better relations with financial institutions, positively impacting conditions of life and growing business.

Such evident use of scalable technology, to solve what we call Humanity Grand Challenges, is exactly what we are searching in Hatch, to pioneer the boost of Impact Tech Ventures.



**SATSURE IS NOW GIIRS RATED**

A Gold Standard For Social And Environmental Impact.

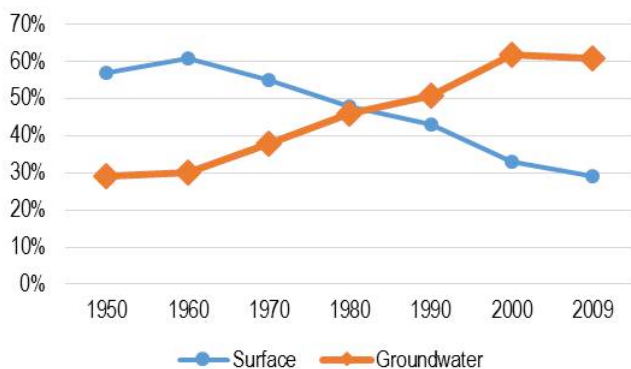


## THE NEXT BIG OPPORTUNITY: INNOVATION IN AG-WATER

By Srinivas Ramanujam, Chief Operating Officer, Villgro Innovations Foundation



The 1965 Green Revolution revolutionised Indian agriculture. Crop yields soared with better quality seeds, access to fertilizers, farm equipment and access to irrigation. Among these, irrigation and water are the only ones still not priced. Farmers became less dependent on the vagaries of the monsoon thanks to large scale irrigation projects and later an unfettered ability to dig new borewells helped. Stepwells, lakes and other medieval hydrological structures were abandoned, their utility forgotten.



Sources: Agricultural Statistics at Glance 2014, Ministry of Agriculture; PRS

Decades later, we are at the brink of a water crisis with an increasingly erratic monsoon and increasing extraction of groundwater. Without doubt, there are many entities working to improve water conservation and its management. Some examples include the Maharashtra govt. which has been pushing

for drip irrigation in sugarcane through subsidized loans and incentives for drip equipment; or organisations like CIPT and the PANI Foundation that run outreach and extension programs. Private foundations like the Hindustan Unilever Foundation are focused on improving the water efficiency of agriculture and work to achieve this through NGO partners.

It is likely that to bring significant change to this situation, it needs behaviour change at different levels. Villgro expects a coalition of non-profit entities, private companies, local bodies like the gram panchayat and the state governmental programs working in tandem to make this happen.

### Where is change needed?

There are a few challenge areas where a combination of lack of new ideas and information are stumbling blocks.

#### 1. Effective estimation of ground water resources.

Today, water availability at over 30 million ground water structures is modelled through approximately 16,000 observation wells are used to model water availability; which makes the data indicative and not representative. All

hydrological areas might not be well represented.

## 2. Crop patterns and crop pricing

In the last four decades, more than 80% of the total addition to irrigated land has come through ground water. Decisions on cropping patterns and intensity have been taken independent of ground water availability. Though there are MSPs announced for 23 crops, they are effectively followed only for rice, wheat and sugarcane, all of which are water intensive.

## 3. Energy subsidies and a drop in the quality of power.

The availability of cheap / subsidised power in many states has played a major role in the decline of ground water across India. This has led to heavy losses at state DISCOMs and to a drop in the availability and quality of power for agriculture.

## 4. Consumer Demand for water efficient crops

Without consistent demand creation and stable market linkages, farmers have had no incentive to shift to traditional crops like millets.

Water use for crop production (in cubic metres/tonne)				
	Brazil	India	China	United States
Rice	3,082	2,800	1,321	1,275
Sugarcane	155	159	117	103
Wheat	1,616	1,654	690	849
Cotton	2,777	8,264	1,419	2,535

Sources: National Water Footprint Account, UNESCO-Institute for Water Education, May 2011; PRS

## Making sense of where to play

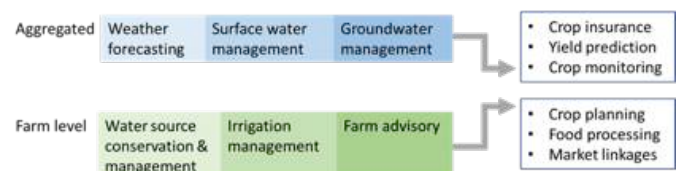
Solving for these large-scale problems could represent the next big opportunity for innovation and entrepreneurship. Though solutions to problems have been identified,

feasible and viable business models are rare. According to Tracxn, there are only 31 start-ups working in water and 16 in irrigation. Out of this only 4 in irrigation and 9 in water have raised any funding. This could all change with the increasing need and focus on managing water better. This decade could see increasing deployment of technologies and support.

Villgro believes that this space could be upended by unique partnerships between foundations, non-profits and start-ups. It sees a few pioneering start-ups bringing in change in these areas working at

A. Aggregated level where data across swathes of farms can help decided on insurance, predict yield or monitor crop status.

B. Individual farm level – contract farming, FPOs and individual farmers – using technology to make their fields more water efficient.



Along with Hindustan Unilever Foundation, it is trying to help non-profits and start-ups work together to bring together innovative products, services and develop new go-to-market strategies.

For corporate buyers and governmental bodies –

- **SatSure** is enabling better decision making by crop insurance companies and helps commodity buyers with improved production and yield prediction data

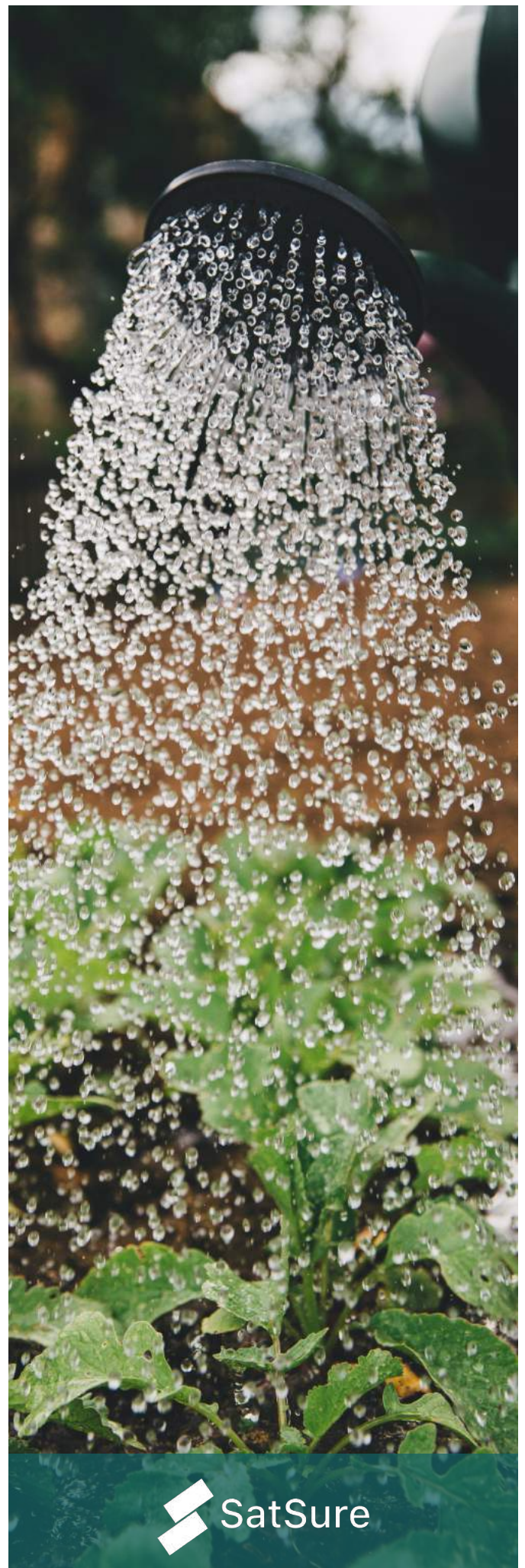
For individual farmers, FPOs and contract farming

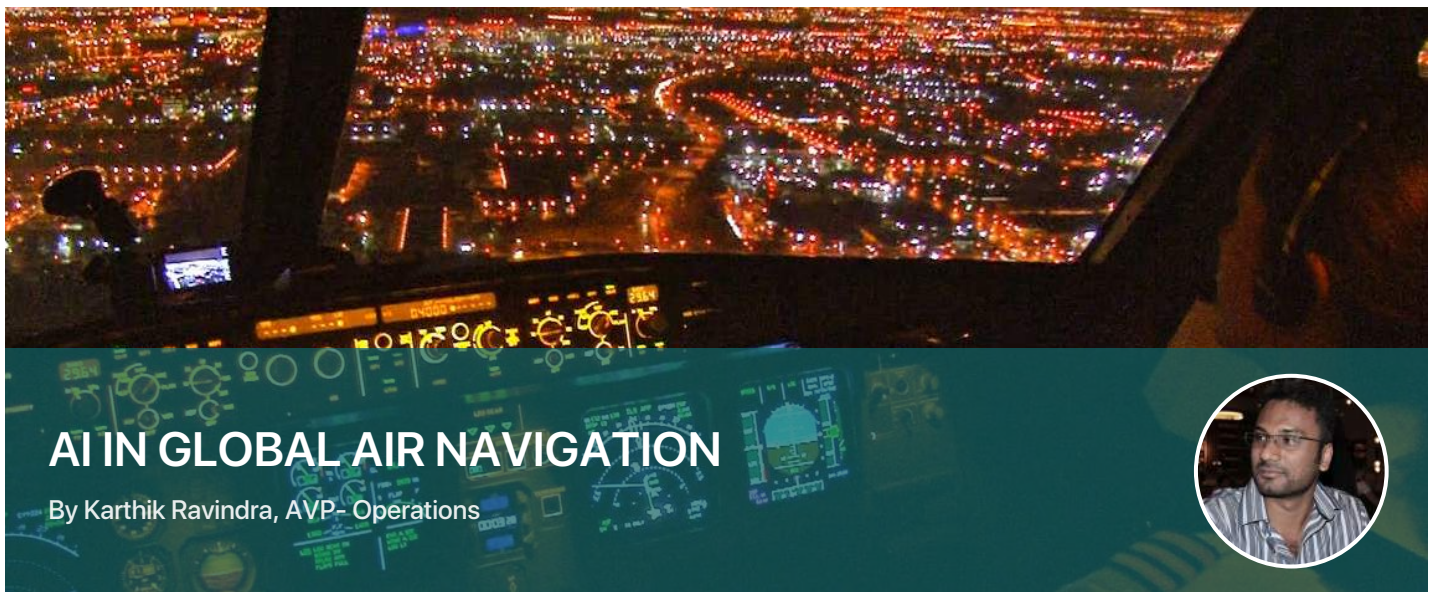
- **Cultivate** is making distributed large-scale farm irrigation solutions intelligent through active soil moisture monitoring and automating water flows to crops
- **Flybird** is helping individual farmers save water and be more intelligent in managing irrigation through affordable irrigation and fertigation solutions
- **Aroghyam Medisoft** is taking soil testing out of the lab, making it quicker and more affordable to deploy. This is helping FPOs advise farmers better to manage water and inputs better
- **Agri Rain** is deploying irrigation as a service, with its rental model for hose reel irrigation equipment.

Other upcoming segments are in consumer brands, supply chains working with water efficient crops and technology/data based models that create and predict demand from commodity and corporate buyers.

## Where do we go from here?

As the focus shifts from land productivity to irrigation water productivity, it is not for players to independently work on solutions. The past few decades have shown that not much can be achieved this way. Innovative go-to-market strategies, coalitions across the non-profit, state, corporate and start-up ecosystems could be the answer to bring in lasting, equitable and systemic change that the Ag-Water space desperately needs.





Air transport plays a major role in driving sustainable economic and social development. It directly and indirectly supports the employment of 58.1 million people, contributes over \$2.4 trillion to global Gross Domestic Product (GDP), and carries over 3.3 billion passengers and \$6.4 trillion worth of cargo annually. Aviation achieves its impressive level of macro-economic performance by serving communities and regions through clear cycles of investment and opportunity. Infrastructure development generates initial employment and the ensuing airport and airline operations generate new supplier networks, tourism influxes and access for local producers to distant markets. These burgeoning trade and tourism economies then continue to expand, fostering wider and more sustainable regional growth.

The present-day air traffic system is reaching its operational limits and accommodating future air traffic growth will be a challenging task for air navigation service providers (ANSPs). There is a clear need to substantially increase the existing capacity of airspaces without significantly increasing the demand on the limited human resource and cognitive capabilities of ATCs. New paradigms with Artificial Intelligence (AI) may increase anticipatory and decision-making capabilities

within complex and uncertain environments. AI systems have high potential in Air Traffic Management (ATM), specifically in areas which involves decision making under uncertainty (e.g. conflict detection and resolution) and prediction with limited information (e.g. trajectory prediction). These approaches can support the human operators in exploitation of timely and dynamic information on atmospheric hazards, traffic fluctuations, and airspace utilization.

The object of the Aeronautical Information Service (AIS) is to ensure the flow of aeronautical data and aeronautical information necessary for global ATM system safety, regularity, economy and efficiency in an environmentally sustainable manner. The role and importance of aeronautical data and aeronautical.

Information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE). Corrupt, erroneous, late or missing aeronautical data

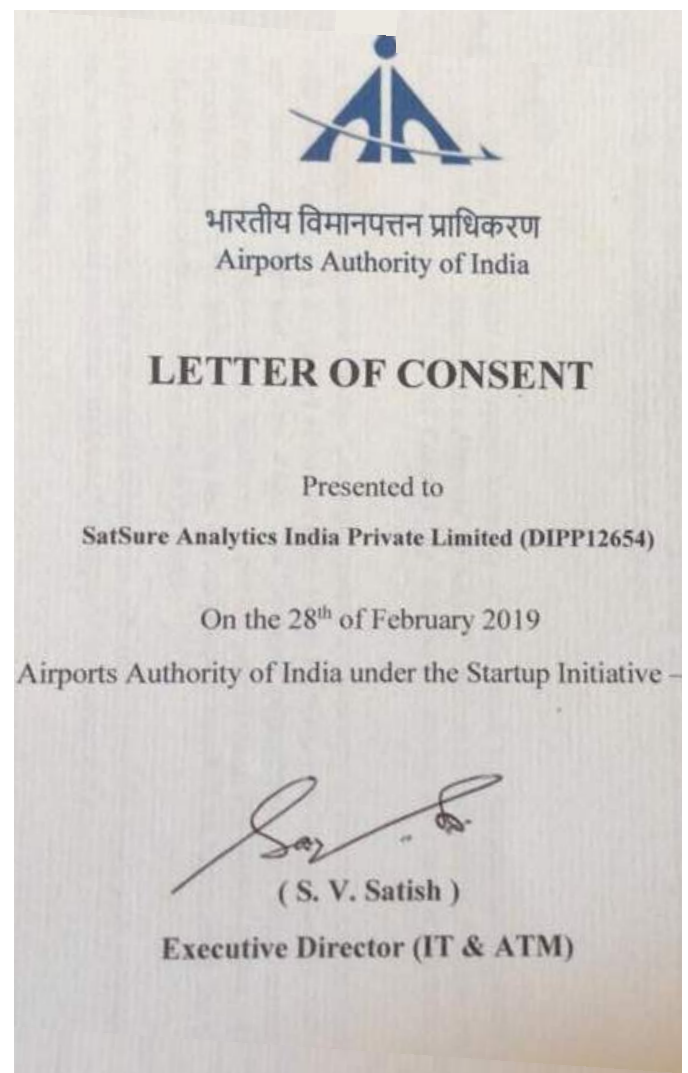
and aeronautical information can potentially affect the safety of air navigation.

Accurate terrain and obstacle information is of great importance for the safety of flights. This applies in particular for the approach phase, where aircraft intentionally reduce their altitude and maintaining safety margins is crucial. As air traffic volumes increase and air space capacity grows closer to saturation, there becomes a need for more sophisticated routes and procedures to increase efficiency, while reducing fuel consumption and emissions. To maintain safety margins, accurate and detailed terrain and obstacle data is essential. Growing numbers of obstacles around airports, as well as a growing number of aircraft equipped with enhanced ground proximity warning systems and synthetic vision, are contributing to the demand for accurate and up-to-date terrain and obstacle data.

With the help of precise and reliable electronic terrain and obstacle data (eTOD), used by in-flight and ground-based applications, substantial benefits in safety and efficiency are achieved. Consequently, ICAO requires all member states to ensure the availability of eTOD for all aerodromes regularly used by international civil aviation. Providing terrain and obstacle data electronically is also explicitly required in the transition from AIS to Aeronautical Information Management (AIM).

The differentiating factor of an AI system from a standard software system is the characteristic ability to learn, improve, and predict. Through training, an AI system is able to generate knowledge and apply it to novel situations not encountered before. While computing powers were a barrier to adoption

previously, advancements and greater availability of data has propelled AI applications across industries. Today, AI capabilities are proliferating across the transport sector through AI-enabled autonomous vehicles. Faced with the challenges of growing traffic, resource demands, increasing uncertainties, and operational complexity, ATM can exploit the power of AI to empower current operators and boost productivity through the capability of decision making under uncertainties and provision of optimized situational strategies that procedures or simple algorithms cannot provide. This would assist operations in managing varied air traffic scenarios with high efficiency and safety.





## INDIA'S WATER CRISIS MANAGING DROUGHT AND FLOODS

By Bharat Aggarwal, Operations Manager

### **India is facing a water crisis- in more ways than one**

Water availability (or its lack thereof) can be like a double-edged sword. While too little water leads to drought, too much can cause floods. Both are detrimental to human lives and livelihoods. While the two cannot be any further from each other in their form, in the age of climate change, coexistence of both is the new reality of our times.

In August this year, Karnataka's Kodagu district, the origin of the Cauvery river, was battling with floods after having experienced drought just four months before. Pune, which had not seen floods in years, was hit twice by the disaster in 2019. First in early August and then in September with the latter being very destructive. This year saw the story being repeated in state after state in the country. Agriculture which employs 50% of the Indian work force is particularly hit. Madhya Pradesh, which accounts for 50% of soybean sown in India, saw a 25% hit to the crops due to floods

**Apart from the weather, there are many factors that make the situation worse and have a multiplier effect.** If we want to tackle such unprecedented challenges, we need to understand the problems more deeply.

**Expansion of unplanned human encroachment in urban and hilly areas** leads to constriction of natural passage and percolation of rainwater. This has contributed to the severity of floods in Chennai and Pune. Satellite based intelligence can help city planners and policy makers to make better decisions. A map of building footprints can be used by city planners to analyze change in land use over time in the city and the success of different policies over time. The same information can be used by forest department to analyze the impact of urbanization on forest areas and the ecology.

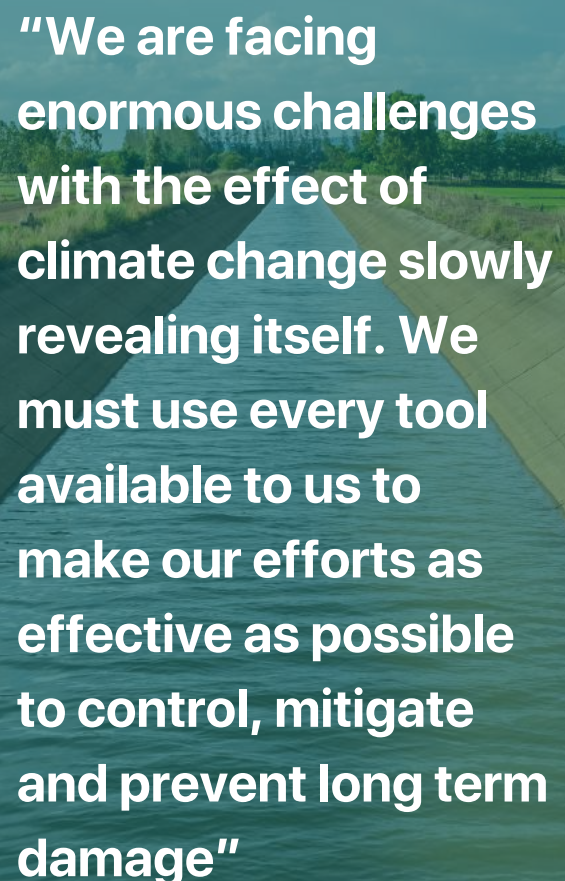
**Dams, which were built to control floods, have become triggers of disaster.** A dam is dry by the end of summer. So, the dam managers start filling it up as soon as monsoon sets in so that it can be used for irrigation and generation of electricity, hence releasing very less water. When another round of intense rainfall comes later in the monsoon season, a situation arrives when water must be released suddenly in large quantities. This worsens the already bad situation. Dam managers need better tools to decide when to release water. Satellite derived Digital Elevation Models (DEM) are 3D representation of a terrain's surface.

These can be used to understand the patterns in flow of water and the extent of inundation for different scenarios of rainfall conditions. This, when combined with weather forecast information, becomes a tool in the hands of dam managers to regulate when and how a dam should be filled and emptied, to ensure that the dam is full to its capacity only towards end of the monsoon season. DEMs can also be used to design lift water management systems to distribute excess water.

**On agricultural land, the unrestricted flow of rainwater washes away the topsoil** and makes the land unproductive for subsequent seasons. The farmers also miss out on the opportunity to store that water as ground water to use for rest of the year, making them vulnerable to drought like conditions. Fortunately, the methods that help in mitigating the risks of floods also help in becoming more resilient against droughts. If the flow of water is slowed at different levels by building small reservoirs/bunds on its path along the gravity gradient, it can percolate into underground water reservoirs. This prevents soil erosion and smaller floods and rejuvenates the land. DEMs can be used to identify sites where civil structures can be constructed such that they slow down the flow of water in a way that has the most impact.

Enabling farmers for water management practices If it rains after irrigating the fields, it not only costs dearly in terms of expensive irrigation, but also leads to crop loss due to excess moisture in the soil. Satellites can be used to monitor soil moisture through crop moisture proxy in the fields. This information can be combined with weather forecast to decide if it is wise to irrigate the fields at a certain time. SatSure is working with Government bodies to help adopt climate resilient methods in agriculture.

**Water accessibility.** Across the globe, populations face the challenge of growing water scarcity. This includes “physical scarcity,” which means there is inadequate volume of water to meet people’s needs, and “economic scarcity,” which results from a lack of investment and proper management of infrastructure. There is a huge potential to improve accessibility and productivity of the available water resources. SatSure is working with government bodies to improve access to water resources and develop newer means of livelihood for the rural population, hence improving productivity of water.



**“We are facing enormous challenges with the effect of climate change slowly revealing itself. We must use every tool available to us to make our efforts as effective as possible to control, mitigate and prevent long term damage”**

# OCTOBER IN CONTROL



## SATSURE SIGNS 4 MOU'S IN PHILIPPINES

Satellite imagery analytics to be applied to solve diverse problems for agricultural value chain.

The MOUs were signed in the presence of the honourable President of India, Mr. Ram Nath Kovind, Agriculture Secretary William Dar and other Government dignitaries from Philippines.

SatSure's co-founder and CEO for EMEA, Abhishek Raju, who represented SatSure, strongly put forward the need of credit access to farmers in developing countries and the importance of data transparency in agriculture.

Following are the MOUs signed which shall take satellite imagery-based decision intelligence

1. Satellite-based weather index-insurance for hybrid corn seeds

2. To create a satellite-enabled integrated 'Agri-clinic', Agri-fintech mobile app for agriculture extension and supply chain services, and farm-to-market e-commerce platform.

3. Development of the world's first ever satellite-enabled Islamic Agri-credit solution and crop insurance product

4. A MOU on Indian garlic and onion adaptability varietal trial and scientific production technology training for small holder Filipino farmers



Sarvesh Kurane (AVP - Value Engineering at Satsure) and Hemendra Mathur (Venture Capitalist at Bharat Innovation Fund) at the Rural Development and Food Security Forum 2019 held at Manila, Philippines.



## Enabling FPOs to be the Drivers of Change In Indian Agriculture

Organisations and leaders came together to discuss strengthening of the FPO value chain

SatSure was an exhibiting partner at the Samunnati and The Economic Times Farmer Producer Organisations Summit & Awards 2019.


Extensive discussions were held to empower FPOs through new technologies to tackle problems in the agricultural value chain.

Leading FPOs and Agtech companies came together to discuss ways to resolve problems in agricultural value chains, by greater adoption of digital technologies and analytic solutions.

In a country where average land holding is 1.1 Ha, FPO's also act as aggregators that increase the scale of operations to a critical threshold that can enable adoption of innovative solutions. Digitization of farm operations can be the foundation that will enable integration of other services like remote monitoring and smart management.

This will improve efficiencies at all steps in the supply chain and enhance access to credit. Both FPO's and Agtech companies are in their early stages of development, and a collaborative development is natural.





**"Oryol Oblast is among the leaders in terms of agricultural output. Of course, we understand the importance of using the most advanced developments in the agricultural industry"**

**- Andrei Klychkov**

*Governor of Oryol Oblast, Russia.*

## **Aiming to Impact Livelihoods with FAO**

Opportunity to align with UN's SDGs

SatSure signed an MOU with Food and Agriculture Organisation (FAO) for providing technical assistance towards the Sustainable Development Goal projects and initiatives pertaining to agriculture, fisheries and livestock development. The signoff took place in the presence of Mr. Tomio Shichiri, FAO Country Head in India, Mr. Raman Ahuja, Senior Advisor at The World Bank and Mr. Prateep Basu, CEO of SatSure India.



## **Delivering Agricultural Insights for Oryol Oblast, Russia**

Helping tackle food security for the region

The Governor of the Oryol Region, Andrei Klychkov, signed a memorandum of cooperation with SatSure, received by Abhishek Raju, SatSure CEO for EMEA.

We plan to provide agricultural insights for crops grown to manage the large agricultural area with an objective to assist the Government double the crop yield in the next 10 years.



HAPPY  
*Diwali*

