Operation Dronagiri
Corporate Partners Success Stories

Selected district wise implementation

1.Varanasi

Use cases Implemented In Varanasi, the initiative was launched on 14th December 2024 and it has activated multiple use cases led by corporates such as ITC-MAARS, Delhivery, and LCB Fertilisers. These include applications in farm advisory in the Agriculture sector and supply chain management in Transport. The participation of these entities has turned Varanasi into a living lab for data driven development.

ITC- MAARS

The ITCMAARS Farm Advisory Pilot under Operation Dronagiri in Varanasi district during the Rabi 2024–25 season yielded significant outcomes through the integration of geospatial data and a "phygital" (physical + digital) advisory model. The initiative reached 26,973 farmers across 15 FPOs and 346 villages, delivering personalized and predictive crop advisories. These advisories spanned the entire crop cycle and included recommendations on nutrient management, weather alerts, pest and disease management, and optimal farming practices. Notably, 100 wheat demonstration plots helped validate the effectiveness of the approach, with farmers witnessing a 15.3% increase in yield and a 26.4% increase in net returns per acre compared to control farms. The pilot strengthened FPOs by providing soil testing services, agri-input kits, mechanization support (such as seed drills), and access to authentic agricultural inputs. ITCMAARS facilitated 189 advisories and also connected farmers to government schemes, weather updates, and real time market prices. Key digital tools like the Crop Doctor, Krishi Mitra chatbot, and crop calendar were well received. Around 88% of farmers reported improvement in their knowledge of good agricultural practices, 84% understood the value of balanced fertilization, and 78% reported improvements in yield and income. Overall, the pilot demonstrated the value of integrated digital agriculture platforms for smallholder farmers, leading to increased productivity, knowledge, and economic benefits. Farmers appreciated the timely support, and 72% expressed interest in continuing with the advisories. The pilot highlighted a scalable model for enhancing last-mile agricultural extension using geospatial technology, AI-based tools, and a strong on-ground support system. Overall, Operation Dronagiri demonstrated the effectiveness of a scalable,

data-driven farm advisory model. It empowered farmers to adopt Good Agricultural Practices (GAP), enhanced FPO capacities, and created indirect benefits through community knowledge sharing—marking a strong step toward sustainable, tech-enabled agriculture

LCB Fertilizer

LCB Fertilisers conducted a remote sensing-based study with support of Agri Matrix India Pvt Ltd, to assess the impact of their Navyakosh Fertiliser Organic Manure (FOM) on crop performance across multiple farms. Using satellite data from Sentinel and PlanetScope, along with ISRO soil maps and weather analytics, the project mapped treated and untreated fields with similar sizes and conditions. Vegetation and nutrient indices such as (Normalized Difference Vegetation Index)NDVI, Modified Soil Adjusted Vegetation Index (MSAVI), Red Edge Chlorophyll Index (NDRE), and Normalized Difference Red Edge Index (RECI) were analyzed across historical data (2017–2024) to evaluate improvements in plant health, moisture retention, and nutrient uptake. The results showed that Navyakosh-treated fields consistently outperformed control fields. Higher vegetation indices reflected denser, healthier crops, while improved NDMI values indicated better moisture retention and drought resilience. Yield modeling using WOFOST (World Food Studies) and LAI (Leaf Area Index) assimilation projected a 15–20% increase in crop output on treated fields, with early yield forecasts achieving 80–90% accuracy. The application also led to more efficient resource use—reducing fertilizer misuse by 25%, pesticide use by 20–35%, and irrigation needs by up to 25%. Soil health improved as well, with a 20% increase in organic carbon and a 25% rise in beneficial microbial activity. The study highlights the integration of satellite analytics to identify effectiveness of agri-inputs like Navyakosh. It demonstrates the potential of data-driven agronomy for precise input application, early stress detection, and yield forecasting. Moreover, the results support alignment with government schemes like PKVY and pave the way for integration with carbon credit programs—positioning Navyakosh as a climate-smart solution for improving productivity and environmental sustainability

Delhivery

Delhivery is actively working to enhance last-mile delivery efficiency in rural areas by leveraging geospatial data and village-level mapping. In the case of Varanasi, the district administration has provided detailed data on village road boundaries, which has been uploaded 15 onto the GDI platform. Delhivery is currently evaluating this data to improve the accuracy of their delivery operations in the region. In Varanasi the identification of village polygons led to a 2% increase in field executive efficiency, Delhivery also improved

geocoding accuracy by approximately 10% in rural areas. Additionally, they were able to resolve 90% of rural addresses to precise village names, up from the previous 75%, which significantly enhanced delivery acceptance rates among their field executives during simulations.

2.Washim

Use cases Implemented The Washim chapter of Operation Dronagiri was launched on January 22, 2025, with a focus on applying geospatial intelligence to enhance agriculture, transport & infrastructure, and livelihoods. The district administration, supported by the GDPDC Secretariat, Survey of India, and academic partners, played a central role in facilitating local implementation. Key initiatives included the use of the Geospatial Data-Sharing Interface (GDI) to support data driven decision-making, with over 500 datasets integrated. Collaborative efforts with corporate partners such as Ceinsys, LCB Fertilizers, Delhivery, and Bhoomi Seva targeted local challenges through tailored interventions.
• **Agriculture: Ceinsys** is developing a Farmer Decision Support System (FDSS) leveraging drone-based surveys, soil mapping, and satellite analytics to provide farmers with personalized advisories via digital platforms. The prototype is under development and expected to be ready by mid-August 2025.
• **Sustainable Farming: LCB Fertilizers**, in partnership with ITC, is conducting field trials since June 19, 2025, to deliver customized organic fertilizers informed by geospatial data on soil nutrition, crop type, and weather conditions.
• **Transport & Infrastructure: Delhivery** is improving last-mile delivery efficiency through enhanced village-level mapping. Building on its Varanasi success, the Washim project aims to boost address resolution and delivery accuracy by integrating village road boundaries into logistics workflows. The collaborative, multi-sectoral approach in Washim is setting the foundation for scalable models that can drive regional socio-economic transformation through geospatial technology.

Ceinsys

A GIS-based Farmer Decision Support System (FDSS) is being developed for Washim district under the guidance of GDPDC, utilizing Ceinsys Tech Ltd.'s expertise in geospatial technologies. The objective is to provide farmers in Washim with actionable insights for better crop planning, resource management, and sustainable agriculture. The solution includes drone based field surveys, soil and land-use mapping, satellite imagery analysis for crop monitoring, and a centralized data platform. Farmers will receive personalized advisories through easy-to 16 use mobile and web applications, along with training and on-ground support to ensure effective utilization. The development of the prototype for Washim is currently underway and is expected to be completed by mid-August.

LCB Fertilizers

The project in Washim focuses on leveraging geospatial data—including crop data, weather information, soil nutrition values (N, P, K, C), and satellite imagery—to provide decision support to farmers. District Administration - Washim is facilitating the delivery of crop-specific advisory services along with customized organic fertilizers. These fertilizers are designed based on soil, crop, and weather conditions and enriched with essential macro and micronutrients such as N, P, K, Zn, S, Fe, C, Mn, and Cu to improve soil health, enhance productivity, and address nutrient deficiencies. Further, field trials commenced on 19/06/2025 in collaboration with ITC, and the trials are currently ongoing to validate and refine the proposed interventions.

Delhivery

Delhivery is actively working to enhance last-mile delivery efficiency in rural areas by leveraging geospatial data and village-level mapping. In the case of Washim, the district administration has provided detailed data on village road boundaries, which has been uploaded onto the GDI platform. Delhivery is currently evaluating this data to improve the accuracy of their delivery operations in the region. Building on their successful implementation in Varanasi, where the identification of village polygons led to a 2% increase in field executive efficiency, Delhivery also improved geocoding accuracy by approximately 10% in rural areas. Additionally, they were able to resolve 90% of rural addresses to precise village names, up from the previous 75%, which significantly enhanced delivery acceptance rates among their field executives during simulations. A similar approach is being adopted for Washim, where the integration of accurate village-level data is expected to streamline rural logistics, improve address matching, and ultimately boost operational efficiency for last-mile delivery services.

3.Vizanagaram

Use cases Implemented Launched on February 24, 2025, Operation Dronagiri in Vizianagaram aims to harness geospatial solutions across agriculture, transport & infrastructure, and digital governance. The initiative is steered by IIT Tirupati Navavishkar I-Hub Foundation as the Geospatial Innovation Accelerator, with strong backing from district and state administration. The project leverages the GDI Platform, currently hosting 500+ datasets, to enable real-time decision-making and collaborative problem-solving.

Key interventions include:

Use Case:
Supply chain analysis for Level-3 ration distribution, route mapping, and stock movement tracking.

Success Story:
Trinetra Wireless collaborated with the Civil Supplies Department of Vizianagaram District to strengthen transparency and operational efficiency in the essential commodities supply chain. To support their Level-3 ration distribution pilot, comprehensive geospatial datasets for Gajapathinagaram Mandal were provided, including route maps, stock movement patterns, and distribution network details.

Leveraging this data, Trinetra Wireless conducted in-depth supply chain analysis, enabling optimized routing, improved tracking of goods, and identification of delays or bottlenecks within the system. The pilot project showcased the effectiveness of GIS-integrated supply chain monitoring, laying the foundation for district-wide scalability. This collaboration proved to be a significant step toward ensuring timely and accurate delivery of ration supplies to beneficiaries.

HEXAGON

Hexagon Pvt. Ltd, a technology partner under Operation Dronagiri, is developing an advanced farmer application integrating soil data, climate insights, IoT inputs, pest detection systems, and agri-market linkages. Hexagon was connected with government officials in Vizianagaram, including Joint Director of Agriculture, Sri V.T. Rama Rao, who assigned Therlam mandal for the pilot project.

As per their request, detailed farmer datasets from Therlam including KML files were provided. Using this data, Hexagon successfully analyzed crop varieties across the mandal and studied weather patterns to develop actionable insights. Their work aims to support precision agriculture, optimize resource utilization, and offer farmers real-time advisory services.

This pilot has demonstrated the value of integrated geospatial and agricultural datasets in improving farming outcomes and supporting data-driven decision-making.

Magnasoft

Use Case:
GIS-based land survey, government land mapping, and land records portal enhancement.

Success Story:
Magnasoft partnered with the Survey Department of Vizianagaram to modernize land administration through advanced geospatial mapping. To support their initiative, the department provided datasets for 50 unsurveyed villages, including Field Measurement Books (FMB) and KML files.

Using this data, Magnasoft initiated a systematic GIS-based land survey and began integrating the outputs into a unified land records portal. This effort enabled precise boundary identification, improved accuracy of land ownership details, and paved the way for transparent and accessible digital land governance. The collaboration successfully demonstrated how technology-driven surveys can resolve long-pending land classification and mapping gaps while strengthening citizen services.

Under Operation Dronagiri in Vizianagaram district, Aimlocate is building an integrated agriculture platform powered by geolocation to support farmland address verification, insurance claim validation, real-time mandi prices, and localized agri-services. Through coordination with the Joint Director of Agriculture, Vizianagaram, Sri V.T. Rama Rao, Aimlocate was assigned Bobbili mandal for the pilot implementation.

The project received strong support from the Bobbili Mandal Agriculture Officer, who provided key operational data. As part of the pilot, details of 22 Rythu Seva Kendras (RSKs) were shared with Aimlocate, including the services provided at each center. This data enabled Aimlocate to map agriculture service delivery more effectively and design their digital ecosystem tailored to the local needs of farmers.

This collaboration marks a significant step toward creating a unified digital agricultural framework that enhances transparency, improves service delivery, and strengthens farmer support systems in Bobbili mandal.

Delhivery is actively working to improve last-mile delivery efficiency in rural areas by leveraging geospatial data and village-level mapping. In Vizianagaram, the district administration has provided detailed data on village road boundaries, which has been uploaded onto the GDI platform. Delhivery is currently evaluating this data to enhance the accuracy of its delivery operations in the region. Building on their success in Varanasi where village polygon mapping led to a 2% increase in field executive efficiency and a 10% improvement in geocoding accuracy.
Delhivery also raised rural address resolution rates from 75% to 90%, significantly enhancing delivery acceptance during simulations. A similar approach is being adopted in Vizianagaram to streamline rural logistics, improve address matching, and boost operational efficiency. Additionally, Delhivery's corporate partners had requested data on the geo-locations of water resources, ATMs, Points of Interest (POIs), and the rural road network. Government officials have submitted data on water resources and ATMs (geo-tagged locations), which has been shared with Delhivery. The collection of the remaining datasets is currently under process with the concerned government officials.

BhoomiSeva
Nurturing Soil

Use Case:
Soil testing, organic conversion initiatives, and nutrient spraying through drone technology.

Success Story:
Bhoomi Seva, in coordination with district authorities, embarked on a mission to promote sustainable agriculture in Vizianagaram. A detailed Detailed Project Report (DPR) was submitted to demonstrate the feasibility of drone-enabled soil testing and nutrient spraying for improved crop health and productivity.

To advance the project, a site visit to Vizianagaram was scheduled to finalize pilot locations for field implementation. This collaboration aims to introduce innovative agritech solutions that enable farmers to adopt organic cultivation practices, reduce manual labor, and achieve precise input application. The initiative sets the stage for a scalable model of climate-smart, technology-driven farming.

Trimble

Under Operation Dronagiri, Trimble Corporate Partners are supporting the district administration in creating Digital Twin models of heritage sites to boost preservation and tourism.

The Clock Tower, Vizianagaram has been selected as the pilot project. As requested by Trimble, the team successfully provided high-accuracy Ground Control Points (GCPs) to enable precise 3D reconstruction.

With Trimble's advanced geospatial technology, the Digital Twin of the Clock Tower will:
- Support conservation planning
- Enhance tourism through immersive digital visualization
- Serve as a model for future heritage digitization in the district

Trimble's proven expertise and reliable geospatial solutions make them a valuable partner, marking a significant step in Vizianagaram's digital transformation journey.

WX-ONE has been instrumental in enabling the cloud infrastructure for Operation Dronagiri, delivering a secure, scalable, and high-performance platform to manage large geospatial datasets. The cloud environment ensures fast data processing, seamless system integration, and reliable access to critical project data.

The registration and onboarding process between WX-ONE and Hexagon was completed successfully, followed by the timely setup of the required server infrastructure in coordination with project control partners. The servers are now fully deployed and undergoing final testing to ensure smooth and stable operations.

WX-ONE's support strengthens the digital backbone of Operation Dronagiri, empowering advanced geospatial workflows and supporting the project's ongoing digital initiatives.

4.Kamrup

Use cases Implemented

Operation Dronagiri was launched in Kamrup (Metropolitan and Rural) on March 25, 2025, to demonstrate the transformative potential of geospatial intelligence in addressing local challenges across agriculture, transport & infrastructure, and livelihoods. The kick-off event, chaired by the GDPDC Secretariat and supported by the District Administration of Kamrup, brought together diverse stakeholders including government agencies, corporates, academia, and startups. The initiative is powered by the Geospatial Data-Sharing Interface (GDI), which has facilitated seamless data access, with over 1,000 datasets integrated to support real-time decision-making and planning.

Key interventions in Kamrup include:

• **Alternate Livelihood Generation:** In collaboration with Tech Mahindra, Esri, and GalaxEye, the project focuses on mapping pisciculture potential and mitigating human wildlife conflict through geospatial monitoring and predictive analytics.

• **Artisan Market Expansion:** To enhance livelihood opportunities for local artisans, over 420 artisans have been geo-tagged and made visible on Google Maps and Esri's Mappels platform. This digital presence has improved market access and customer reach. The initiative, supported by the Assam State Rural Livelihood Mission (ASRLM), aims to onboard 2,500 artisans and integrate them with ONDC for e-commerce enablement.

• **Transport & Infrastructure:** Geospatial insights are being used to improve routing, logistics, and urban planning in both urban and rural parts of Kamrup, fostering better public service delivery.

Kamrup's experience underlines the role of geospatial solutions in not only driving efficiency in traditional sectors like agriculture and transport but also in empowering local communities through digital inclusion and market linkages. The collaborative model adopted here offers a scalable blueprint for similar districts across India.

Geospatial-Driven Market Access Expansion for Assam's Artisans

One of the use cases under Operation Dronagiri in Kamrup has been the market access expansion for local artisans. This initiative is designed to empower artisans by leveraging geospatial visibility and e-commerce integration to help them access broader markets across India.

Operational Highlights:
As of now, over 420 artisans have been successfully geo-tagged and are live on both Google Maps and Esri's Mappels platform. This is a critical milestone in the initiative as it significantly enhances the visibility, discoverability, and connectivity of artisan clusters. Users can now view artisan profiles, precise locations, and contact details directly on navigation platforms allowing for seamless reach by customers, logistics partners, and buyers.
This increased geospatial visibility is already driving higher outreach, more inquiries, and revenue growth opportunities for local artisan businesses.
Currently facilitating the onboarding of 2,500 artisans' data through the Assam State Rural Livelihood Mission (ASRLM). This effort is actively underway and represents a significant step in expanding the reach and impact of the initiative.
Artisan database is being systematically published on both Google Maps and Esri's Mappels, The digital visibility and discoverability of Assam's artisan ecosystem. This allows for real time access to artisan profiles, product categories, and locations enhancing customer engagement and improving logistics linkages.
Simultaneously, these artisans will also be integrated with the Open Network for Digital Commerce (ONDC), enabling them to sell their products directly to customers across India.
This will allow artisans to operate as digitally enabled entrepreneurs, removing their dependence on seasonal fairs, physical exhibitions, or costly intermediaries. The ONDC model offers a cost-effective, inclusive, and scalable solution for rural and traditional craft-based businesses to access consistent national demand and generate sustainable incomes.