#### Solution:

# Intelligent Agricultural Systems Advisory Tool (iSAT)

# Submitter: (ICRISAT)

## **Solution Overview**

What is it, and what problem does it solve? Brief 2–3 sentence description.

ICRISAT, with the support of partners, developed iSAT, an AI-based, context-specific agro-advisory platform for climate risk management. It delivers dynamic, location-specific, and weather-informed advisories tailored to farmers' cropping stages and local conditions. By integrating real-time climate data, crop calendars, and local knowledge, ISAT addresses the gap in timely and actionable decision support for smallholder farmers in managing climate risks.

# **Key Features & Benefits**

Main components and why it is useful? Bullet points summarizing methods, tools, and value added.

- Al and a rule-based engine integrate weather forecasts, soil, crop, and local datasets.
- Generates Seasonal and 5-day weather-based crop advisories in local languages, delivered via SMS, WhatsApp, and extension networks.
- Covers the complete cropping cycle, including land preparation, sowing, nutrient and pest management, irrigation, and harvesting.
- Farmer feedback loop integrated for continuous refinement and trust-building.
- Customizable interface for different regions, languages, and partner organizations.

## Where It Works and Where It Can Work

Existing and potential target regions, agroecologies, or farming systems. Include examples if available.

ISAT was first tested and piloted in Anantapur, Andhra Pradesh, India, followed by field testing in Parbhani, Maharashtra, India, in collaboration with the Indian Institute of Tropical Meteorology (IITM) and the India Meteorological Department (IMD). It has since undergone scale testing in Odisha, reaching over 6,000 farmers across Andhra Pradesh, Odisha, and Maharashtra. As well in Kenya, iSAT was piloted during 2019–20 for maize advisory services under AICCRA. In Senegal, iSAT-based advisories were deployed through a use case that demonstrated positive shifts in farmers' decisionmaking and climate risk response.

The platform is currently being customized for the entire state of Maharashtra, India, and Ethiopia, in collaboration with national partners, to support the integration of CSA. Scaling efforts are underway in Maharashtra to embed iSAT within state-level climate advisory systems.

iSAT is well-suited for semi-arid, rainfed, and climate-sensitive farming systems across South Asia and Sub-Saharan Africa and can be rapidly adapted to new geographies through its modular, Al-driven framework.

## **Evidence & Impact**

What results has it shown? Stats, pilot outcomes, or testimonials.

- Farmers report higher confidence in decisionmaking and improved outcomes in crop planning and pest management.
- Odisha pilot showed uptake in timely sowing, harvest, and input optimization, especially among smallholders.
- Kenya pilot demonstrated the feasibility of forecast-linked advisories in Swahili with strong local engagement.
- Recognized in multiple working papers, use cases, and public outreach campaigns as a scalable climate advisory model. (Sources: 1, 2, 3, 4, 5, 6)
- Over 23% of users were women, increasing inclusivity in digital climate services.

# Scalability & Adoption Support

Why it can be scaled and what's needed to adopt it?

Low-cost, adaptable, partner-ready, etc.

iSAT is customizable, modular, multilingual, and partner-ready, built for seamless integration into agri-extension systems, FPOs, NGOs, and national networks. It leverages open-source, met APIs, an interoperable architecture, and a configurable rule engine, enabling rapid adaptation across crops, geographies, and languages. Designed to operate with minimal digital infrastructure, iSAT requires only basic connectivity and local data inputs. ICRISAT offers comprehensive adoption support through training, onboarding, data parameterization, and iterative advisory refinement, resulting in a low-cost, scalable, and ready-for-deployment solution across diverse agroecological and institutional contexts.

#### **Contact Info**

For key contacts and more information on scaling this solution, please email: <u>contact.issca@icrisat.org</u>

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