

Bridging the Digital Divide: How SMART NE Kisan Empowered Remote Tribal Farmers in Anjaw

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1. Introduction and Background

Agriculture in India's north eastern region, particularly in the rugged terrain of the Anjaw district in Arunachal Pradesh, has historically been input-intensive rather than knowledge-intensive. Due to complex mountainous topographies, poor connectivity, and limited technical manpower, timely agricultural advisories rarely reached remote farming communities, resulting in low, unstable productivity and food insecurity. To tackle this information gap—the primary driver of "non-income poverty"—Krishi Vigyan Kendra (KVK) Anjaw developed the SMART NE Kisan mobile application during 2016-17. KVK Anjaw was the first KVK among the entire KVKs of the NEH Region. Basically, this initiative has been the outcome of our TSP-sponsored project "Cybernetic Amenity Solution Centre" for the tribal farmers of the Anjaw district. During that time, as facilities were accessed by the farmers and local people, they requested technical know-how in very simple language, fully supported with quality pictures, along with their cure, management, or possible solutions. This was inaugurated by the Director of ATARI Zone-III and Dr. B.P. Bhatt, Director of ICAR RC for Eastern Region, Patna, on August 2, 2016, at Guwahati.

2. The Challenge / Initial Situation

Geographical isolation, high mountains, deep valleys, and difficult terrains made physical extension outreach tedious and nearly impossible for every corner of the district. Connectivity barriers such as severe network blackouts, lack of proper electricity, and zero internet access in remote pockets crippled standard digital agricultural tools. Furthermore, farmers faced a severe information deficit regarding improved crop practices, pest management, market intelligence, and government welfare schemes, leading to low profitability and high stress.

3. The Intervention and Technology Solution

KVK Anjaw designed SMART NE Kisan, an offline-first Android application tailored specifically for remote hilly terrains. It features dual-mode functionality built to operate seamlessly in both online and offline modes, allowing farmers to access data without continuous internet connectivity. The app offers comprehensive content integrating end-to-end information covering agronomy, horticulture, animal science, fisheries, plant protection, government schemes, and Kisan Credit Card (KCC) details. Designed with simplicity and accessibility in mind, more than 1000–2000 farmers have installed the application offline on their mobile devices, availing themselves of vital information even when there is no network in their village or block while returning from Hayuliang town.

4. Economic and Social Impact (Results): An

impact evaluation study conducted across four blocks (Chaglagam, Hawai-Walong, Hayuliang, and Manchal) among 120 respondents demonstrated substantial economic and social outcomes. High Usability and Knowledge Gain: 97.16% of users found the app extremely user-friendly, and 90.54% confirmed its direct utility for daily farming activities.

Favorable Attitude and Technology Adoption:

Around 60% of surveyed metrics reflected a strong positive attitude. Farmers noted that the app is highly relevant to their farming systems (mean score of 2.94) and universally useful regardless of landholding sizes (mean score of 4.70). Yield and Economic Growth: Users reported that the application effectively assists in increasing agricultural yields (mean score of 2.97) and upgrading traditional techniques (74.13% agreement).

Routine Utilization: Regular tracking—such as weekly access to market information (33.91%) alongside plant protection and government schemes—has streamlined input efficiency and financial planning.

Beneficiary Testimonial: "Working in the steep hills of Anjaw, getting timely advice on pest management or government schemes used to mean waiting weeks to visit a KVK official. With the offline features of the SMART NE Kisan app, accurate guidance is right in our hands, helping us make better decisions and improve our harvests without worrying about network signals."— Participating Tribal Farmer, Anjaw District.

Recognition and Awards: The innovative application has received widespread acclaim from institutional authorities for bridging the digital gap in remote locations:

- **Director, ATARI Zone III:** Certificate received for outstanding contribution.
- **Dean CHF, Pasighat:** Certificate of Appreciation from the Dean for innovative ICT-enabled technologies in hilly areas.

- **Deputy Commissioner, District Administration:** Letter of Excellence from the District Commissioner acknowledging the vital work done to support tribal lives in remote localities where network availability is a major threat, praising the app as a pathway to reach the unreached.

Way Forward and Sustainability: While the application has successfully fostered digital empowerment, scaling its impact requires addressing remaining infrastructural bottlenecks—such as localized network towers and power reliability. Future initiatives will focus on intensive village-level capacity-building programs, localized dialect translations (such as Mishmi), and regular physical demonstrations to ensure that every farmer in remote border districts harnesses the full potential of digital agriculture.