



PRECISION CONNECTIVITY: A SCIENTIFIC APPRAISAL OF KISAN CALL CENTERS IN THE ICT ERA



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INTRODUCTION

Agriculture remains a cornerstone of the Indian economy, employing a large proportion of the workforce and contributing significantly to national income and exports. However, the sector is characterized by diverse Agro-ecological conditions, fragmented landholdings and limited access to timely information. Traditional extension systems often fail to deliver real-time solutions to farmers' problems. The advent of ICT has revolutionized agricultural extension. In this context, Kisan Call Centers (KCCs) were established by the Government of India on 21 January 2004 to provide immediate, expert-based advisory services to farmers across the country. KCCs serve as a critical interface connecting farmers with agricultural scientists, thus functioning as a digital backbone of extension services.

Concept and Evolution of KCC

The concept of KCC is rooted in leveraging telecommunication infrastructure to democratize access to agricultural knowledge. It was started by GoI on 21 January 2004 to help farmers by answering their agricultural queries over the phone in their local language. It integrates modern ICT tools with traditional extension mechanisms to create a responsive and inclusive advisory system.

KCCs were designed to:

- Provide instant solutions to farmers' queries
- Deliver information in local languages
- Facilitate two-way communication between farmers and experts
- Ensure technology dissemination at the grassroots level

Farmers can access these services through a toll-free number (1800-180-1551), making it accessible even in remote rural areas.

Operational Mechanism: A Three-Tier System

The efficiency of KCC lies in its scientifically structured operational framework, which operates at three levels:

Level I: Call Center Executives

- Managed by trained agriculture graduates known as Farm Tele Advisors (FTAs)
- Provide immediate responses to general queries
- Record farmer data and problem details

Level II: Subject Matter Specialists (SMS)

- Handle complex queries escalated from Level I
- Experts from State Agricultural Universities, ICAR institutions and research centers

Level III: Nodal Cell

- Ensures policy-level monitoring and quality control
- Maintains database and knowledge management systems

This multi-tier architecture ensures accuracy, speed and reliability in information dissemination.

Technological Infrastructure

KCCs represent a sophisticated integration of telecommunication and digital systems. Key technological components include:

- Internet Protocol Private Branch Exchange (IPPBX)
- Computerized knowledge databases
- Call recording and monitoring systems
- Multilingual communication interfaces

The system is designed to handle queries in **22 regional languages**, making it highly inclusive and farmer-friendly.

Role in Agricultural Extension

KCCs have redefined agricultural extension by shifting from a supply-driven model to a demand-driven model. Their contributions include:

1. Real-Time Problem Solving

Farmers receive immediate advice on:

- Pest and disease management
- Crop nutrition
- Weather-related decisions

2. Bridging Knowledge Gaps

KCC connects farmers directly with scientists, reducing dependency on intermediaries.

3. Cost Reduction

Studies indicate that KCC advisories help farmers reduce input costs and improve productivity.

4. Strengthening ICT-based Extension

KCC integrates with other digital platforms like mobile apps and SMS services, enhancing outreach.

Impact Assessment

The impact of KCC can be analyzed across multiple dimensions:

1. Economic Impact

- Reduced cost of cultivation
- Increased farm productivity
- Improved income stability

2. Social Impact

- Empowerment of small and marginal farmers
- Inclusion through multilingual support
- Increased awareness of modern technologies

3. Institutional Impact

- Strengthened linkages among farmers, researchers and policymakers
- Creation of a national agricultural knowledge network

Challenges and Limitations

Despite its success, KCC faces several challenges:

1. Awareness Gap

Many farmers are still unaware of KCC services.

2. Digital Divide

Limited access to mobile networks in remote areas restricts usage.

3. Quality Variability

Dependence on human advisors may lead to inconsistent responses.

4. Declining Call Volumes

Recent trends suggest reduced engagement, possibly due to emerging digital alternatives like mobile apps and chatbots.

Integration with Emerging Technologies

The future of KCC lies in its integration with advanced technologies such as:

- Artificial Intelligence (AI)
- Machine Learning (ML)
- Chatbots and mobile-based advisory systems

Recent research indicates that AI-driven systems using KCC datasets can achieve high accuracy in query resolution, enhancing efficiency and scalability.

Future Prospects

To strengthen KCC as the digital nerve center of Indian agriculture, the following strategies are recommended:

- Integration with mobile apps and social media platforms
- Use of AI for automated query handling
- Strengthening regional language support
- Enhancing awareness through extension campaigns
- Linking with weather and market intelligence systems

CONCLUSION

Kisan Call Centers represent a landmark innovation in ICT-enabled agricultural extension in India. By providing real-time, expert-based advisory services, KCC has transformed the way farmers access information and make decisions. Despite certain challenges, its integration with emerging technologies holds immense potential to further enhance its effectiveness. As Indian agriculture moves towards digital transformation, KCC stands as a central knowledge hub, ensuring that scientific information reaches even the most remote farmer. It truly embodies the concept of a “digital nerve center”, driving sustainable and inclusive agricultural growth.

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