

## **SESSION 4.1 (INNOVATIONS FOR SUSTAINABLE AGRICULTURE)**

### **Exploring the inclusivity and exclusivity of Kenya's extension & advisory service as part of agricultural innovation system**

Ann Kingiri

*Director of Research at the African Centre for Technology Studies (ACTS), Kenya*

**Abstract:** Agricultural education, extension, and advisory services are a critical means of sharing new knowledge with farmers for the benefit of agricultural productivity, increasing food security and improving rural livelihoods. This is because such institutions have a mandate to transfer technology, support learning, assist farmers in problem solving, and enable farmers to become more actively embedded in the agricultural innovation system. Using secondary and primary data, this paper interrogates Kenya's extension service as part of agricultural innovation system. The case provides some empirical evidence to interrogate the inclusivity/exclusivity of extension approaches in reaching out rural communities especially women in the acquisition of knowledge for innovation purpose. The study finds differences in extension approaches that can effectively stimulate innovation, particularly institutional innovation, in a sustainable and equitable way. In addition, delivery of advisory services is constrained by several factors that denote exclusivity or inclusivity more generally. The paper opens up a discussion around the role of context in helping unpack inclusivity or exclusivity in dynamic innovation systems.

### **Technological innovation and agrarian transition: impact on small and marginal farmers**

Atrayee Saha

*Assistant Professor, Department of Sociology, Muralidhar Girls' College, Calcutta University, Kolkata, India.*

**Abstract:** HYV (High Yielding Variety) seeds brought about green revolution in the 1960s and Genetically Modified crops in the form of Bt cotton was introduced after the 1990s in India. These scientific innovations are widely debated and discussed over the claims of increasing productivity and reducing poverty among the economically impoverished groups of farmers. However, they have not been successful to bring about structural change in the agrarian economy. Social and economic inequality in the rural farming community still persists. The paper seeks to analyse the impact of introduction of these scientific innovations on small and marginal farmers. These scientific innovations have

been conceived as 'paradigms' which have brought about technological revolution in Indian agriculture but have failed to bring about structural change. The aim of the paper is to understand if these scientific innovations have helped in reducing the caste and class inequality found among the different groups of farmers or not. The paper is based on field and secondary evidences collected during specific time periods from 1960s to 1990s and after 1990s. Two important questions have been taken up in the paper: What is the nature of these two scientific innovations? How did these innovations impact upon the caste and class category of farmers?

## **Does Access to Technical Knowledge impact on Farm Yield? A Comparative Role of ICT and Non-ICT Sources**

Bibhunandini Das

*Assistant Professor, Centurion University of Technology and Management, Bhubaneswar,  
bibhu31@gmail.com [bibhunandini.das@cutm.ac.in](mailto:bibhunandini.das@cutm.ac.in)*

**Abstract:** Agricultural output in India is largely influenced inter alia by factors like agricultural technology and social as well as institutional architecture that in turn shape the use of the technology. The development of agricultural sector largely depends on three components: actors involved in the agricultural research and extension services, the farming communities and the policy making agencies. The interaction and learning among these three components leads to agricultural innovation system. In this context, the present paper analyses the role of agricultural research and extension actors in disseminating technological knowledge and its impact along with institutional policies on farm productivity. To analyse, the paper relies on 59th and 70th round of National Sample Survey. To understand the role of agricultural research and extension services, the paper relies on descriptive analysis and to find out the impact the study uses ordinal least square regression. The study found that over the period the use of different sources- ICT and non-ICT sources has marginally increased and there is still disparity across the states. The estimated regression analysis shows that expenditure on modern agricultural input is a decisive factor in order to determine the farm yield. Other than that the use of both ICT and non-ICT sources significantly differentiates the farm yield for cereals and pulses cultivator.

# **Technological Innovations and Agricultural Credit in India: An Analysis of Impact of Kisan Credit Card on Agricultural Credit**

Kiran Kumar Kakarlapudi

*PhD Scholar, Centre for Development Studies, [kiran20uohyd@gmail.com](mailto:kiran20uohyd@gmail.com)*

**Abstract:** This paper analyses the impact of technological innovations, Kisan Credit Card, in the delivery of agricultural credit in order to facilitate and ease the process of credit access from the formal banking sources. The study is in the context of increasing initiatives to enhance the access to formal banking services particularly to historically excluded sectors and sections. It is well known that availability and access to adequate, timely and low cost credit from institutional sources is of great importance especially to small and marginal farmers. It has been a major challenge to find a way for formal financial institutions to provide credit to meet agricultural needs of poor farmers. It is in this context Kisan Credit Cards have been introduced to ease the process of credit delivery to agricultural farmers particularly to poor and marginal farmers. In this paper we use macro data published by Reserve Bank of India to examine the impact of Kisan Credit Cards on access and availability of agricultural credit. Our analysis of trends and patterns of agricultural credit indicates a decline in the access to agricultural credit, measured in terms of number of credit accounts per 1000 cultivators, in the 1990s and revived after 2000 which corroborates with the implementation of KCC. Secondly, the share of credit to marginal farmers also increased particularly in the second decade of reforms. We also find an increase in access to KCC and the amount borrowed through KCC over the years. Similarly, the estimated results of Bundell and Bond (1998) dynamic panel model shows a positive and significant effect of Kisan Credit Cards on access to agricultural credit and also availability of agricultural credit indicating that the technological innovations have positive effect on increasing access to agricultural credit.