NEW DEVELOPMENTS AND PROSPECTS IN INDIAN AGRICULTURE

Edited by
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Dr. M. Sampath

New Developments and Prospects in Indian Agriculture

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The Role of Information and Communication Technology in Agriculture

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I.INTRODUCTION

Agriculture is an important sector of the Indian economy as it contributes about 17 per cent to the total gross domestic product (GDP) and provides employment to over 60 per cent of the population. Indian agriculture has registered impressive growth over the last few decades. The foodgrain production has increased from 51 million tonnes (MT) in 1950-51 to 234 MT from 122 million hectares in 2008-09. The production of oilseeds (nine major oilseeds) has also increased from 5 MT to 28 MT during the same period. The rapid growth has helped Indian agriculture mark its presence at the global level. India stands among top three in terms of production of various agricultural commodities like paddy, wheat, pulses, groundnut, rapeseeds, fruits, vegetables, sugarcane, tea, jute, cotton, tobacco leaves, etc (Government of India, 2008-09). In spite of this formidable growth, the huge challenges facing Indian agriculture are to further increase the production to keep pace with the ever increasing demand from growing population. The productivity is hampered due to non-availability of modern inputs, poor physical infrastructure and more so information on various issues in agriculture. Indian agrarian economy is characterised by low degree of market integration and connectivity, accessibility of reliable and timely information by the farmers on prices of commodities. To fulfill the expectations of the conscious buyers, price and quality, globalisation and liberalisation and maintain the viability of small and marginal farm to retain them in the farming, application of technology in agriculture has become inevitable.

II. DEVELOPMENT OF ICT IN AGRICULTURE

The development and application of better customised technologies specific to agro-climatic conditions, farm size and level of agricultural development is the real challenge ahead for the policy makers. The bane of Indian agriculture is not lack of technologies and R&D efforts but inadequate and inefficient dissemination of relevant information to the farming sector (Bahl, 2008). In most of the developing countries, much of the agricultural information has been found out of date and irrelevant that is not applicable to small farmers' needs, leaving such farmers with very little information or resources to improve their productivity (Meera et al., 2004). The timely availability of right information and its proper utilisation is as critical as the availability of major inputs required for farming until the produce reaches the consumer. The application of Information and Communication Technology (ICT) can play a pivotal role in efficient dissemination of information.

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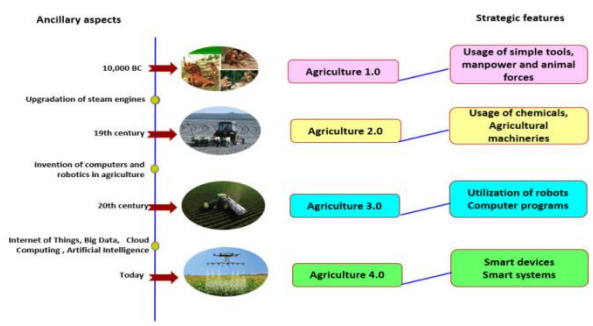
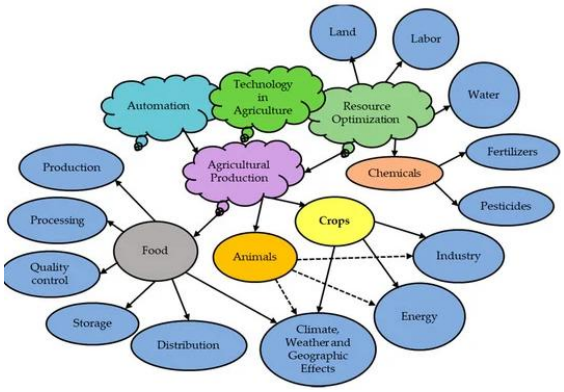
III.ROLE OF ICT IN AGRICULTURE

The ICT can deliver fast, reliable and accurate information in a user-friendly manner for practical utilisation by the end user. The information disseminated facilitates the farmers to decide what and when to plan, how to cultivate, when and how to harvest, what post-harvest management practices to follow, when and where to market the produce etc. (USAID, 2010). In order to get the desired results from the use of ICT for dissemination of information in a country where majority of the farmers are illiterate, land holdings are small or marginal, the level of infrastructure development is very poor in the rural areas, there is need to assess the information requirement of the farmers.



Further, how effectively ICT may be used to deliver the required information to the satisfaction of the user and identifying the suitable model for Indian farmers is required. Against this background, the present paper makes an attempt to: (i) to assess the information requirement of the farming community, (ii) review some of the ICT initiatives made under the Government, co-operative and private sector, (iii) to suggest the requirements for different models for efficient and effective delivery mechanism, and (iv) to recommend policy measures to use ICT for efficient and effective dissemination of information.

IV.THE ICT BASED MODEL FOR INFORMATION DISSEMINATION



The information is vital for development of agriculture and well being of the rural masses. The fact has been well recognised in the form of a number of initiatives taken to disseminate information on agriculture and related aspects by government, nongovernment, private and co-operatives. However, the optimum utilisation of the system and the information disseminated will depend on a number of factors like literacy level, understanding of ICT, extent of telecommunication infrastructure, level of awareness of the farmers, information need of the farmers, etc. Any approach incorporating these factors will have maximum impact. Since few research findings are available to support any particular approach, an attempt has been made to identify the important factors for an ideal ICT model for information dissemination considering the above given factors.

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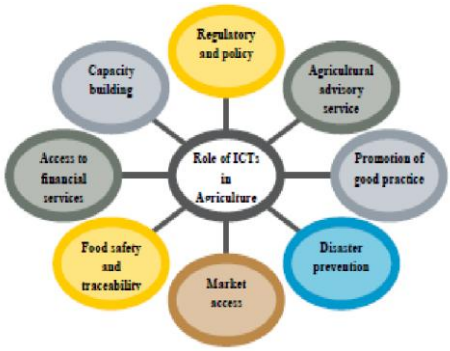
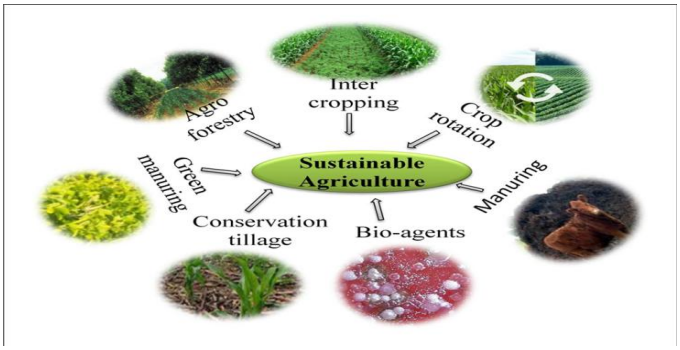
Delivery Mechanism: The rural India characterised by poor literacy and poor infrastructure poses the biggest challenge in finding the correct and effective mechanism for delivery of information to the end user. Under such conditions, mobile phones which are used by sizeable rural population can provide an efficient and effective platform for delivering of information. The penetration of mobile in rural areas has increased in the recent past. The teledensity in rural India was reported to have reached 31.18 per cent by the end of year 2010. A study on fisheries sector in Kerala suggests that mobile phone coverage alone led to significant market efficiencies with reduction in waste and the difference in prices across markets. The study also reported an increase of 9 per cent in fishermen's profits and decline of 4 per cent in consumer prices (Jensen, 2007). Another innovation that has been utilised successfully in some of the approaches to deliver information is introduction of Sanchalak - the facilitator. Mostly the Sanchalak is an educated and progressive farmer from the community itself. This linkage already having the faith of the locals can effectively compensate for the low level of literacy and lack of IT exposure of the farmers.



(ii) Two-way Process: Single directional flow of information has been the problem with many of the government extension programmes. An efficient information system should be a two-way process. The content of information to be delivered by the system should be developed after thorough assessment of the information needs of the farmers.

(iii)Integration of Various Departments: There are a number of departments operating in isolation to serve the varying and different needs of the farmers. The integration of all these departments will help in economic utilisation of resources and help rapid dissemination of information for its optimum utilisation.



(iv) Window for Queries: Agriculture is a kind of profession where practically farmers come across a new problem every day. The information dissemination system should have provision for interaction with subject matter experts to resolve farmers' specific queries.

(v) Customised Information: Different farmers cultivate different crops with different technology and thus, the system should be in a position to serve the specific requirement of the farming community.

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(vi) Integrated approach: An integrated approach using different mediums like phone, films, digital photos, internet, television, radio, local facilitators, etc. according to the needs and level of understanding of the end user would yield better results.

(vii) User friendly information: The information should be provided in an easily understandable format preferably in local language. (viii) Viability of dissemination model: An ideal model should have financial viability so as to sustain itself over a longer period of time.

V.CONCLUSION

There is great transformation in Indian agriculture owing to changes in the economic and trade environment. To cope up with these changes timely, relevant and accurate information to the farmers and other stakeholders will help them take optimum decisions. ICT should play a vital role in the efficient delivery of this information. Several ICT based initiatives have been tried by different players and the same are analysed in the present paper. Based on the analysis review of the different initiatives, an attempt has been made to recommend measures to harness the full potential of ICT as given below: (i) Assessment of information needs of the farmers and appropriate mode of reaching them as per local conditions is crucial before developing an ICT Model (ii) The information dissemination model should be viable and user-friendly so that the initiatives may be sustained in long-run. A string backward and forward linkage should be in place for accurate information collection and its dissemination. (iii) Integration of various agencies under one roof for providing vital information on various components of agriculture so that it will act as a one stop solution for the needs of the farmers. (iv) Introduction of delivery mechanism of information in the case of government initiatives like agmarknet.nic.in is need of the hour so that the information reaches the end user. (v) It is essential to create the requisite ICT infrastructure in rural areas for effective dissemination of information. (vi) Creating awareness among farmers and other stakeholders on the importance of information and its optimum utilisation will help in the development of agriculture and overall well being of the farming community.

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