

E-Agriculture and rural development

(A Study Specially Focused on Rural Farmers of Katpadi Taluk in Vellore District of Tamil Nadu)

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ABSTRACT

An expansive number of studies have demonstrated that even today roughly 70% of Indian Population lives in Rural Areas. Today, Rural Development is fundamental for the advancement of the Indian Economy. Rural economy can be developed by improving rural markets. Indian Government has understood the part of the rural advancement and the commitment of I.T. in the improvement of Rural India. An expansive number of ventures are presented in the country territory with numerous forthcoming activities in pipeline; which are prone to be presented by the Government in the limited capacity to focus time. Country Literacy is positioned at the highest position of need. E-agriculture plays key role in profitable and increased agriculture in the world with the usage of modern Information Technology and Information Communication Technology techniques. In this paper, we have an analysis on the awareness and usage of various E-agriculture techniques currently which in practice in India by the rural farmers who resides in katpadi taluk categorized under various factors like age, gender and education. And from the result analysis obtained from the purposive survey conducted, we came to a conclusion about the awareness and reach of various E-agricultural practices followed by the rural masses in Katpadi taluk in Vellore district of Tamil Nadu.

KEYWORDS: Electronic agriculture (E-agriculture), Information and communication technology (ICT), Information Technology (IT).

1. INTRODUCTION

India is a developing nation among world nations in which web based infrastructure and its various benefits were enjoyed only the urban and semi urban masses. Whereas the rural masses lacks behind this technological improvements as we all know "India lives in Villages". 70% of the India's population resides in villages and there is a serious need for IT based and web based development in rural India, so as to bridge the digital divide. To bridge the existing divide, Information Technology (IT) and various programs of Information Communication Technology (ICT) plays an vital role in building the gap made by the digital divide made due to un equality developments of Urban and Rural India and eventually set of poverty alleviation to a greater extent as rural India is concerned. Rural development can be achieved by improving various facilities of Information Communication Technology (ICT). By means of Awareness and usage of Various ICT programs among the rural masses leads to fruitful results that is raise in social and economic wellbeing and livelihood. Improved agricultural practices with high productivity, profitability and marketing of agricultural outputs by means of usage of new advanced technology and ICT enabled tools is said by E-agriculture. There Awareness of E-agriculture among the rural masses is first important criteria so as to practice various E-Agriculture techniques in rural India. FAO proposes the following definition: "e-Agriculture is an emerging field in the intersection of agricultural informatics, Agricultural development and entrepreneurship, referring to agricultural services, technology dissemination, and information delivered or enhanced through the Internet and related technologies. More specifically, it involves the conceptualization, design, development, evaluation and application of new (innovative) ways to use existing or emerging information and communication technologies (ICTs)".

Rural Development: Rural development is a dynamic procedure, which is principally worried with the rural territories. These incorporate farming development, setting up of financial and social framework, reasonable wages as likewise lodging and house destinations for the landless, town arranging, general wellbeing, training and utilitarian proficiency, and correspondence and so on. Advancement of country zones with a perspective to enhance the personal satisfaction of the provincial individuals is said to be rural development. The motto of the rural development is so as to achieve the following four factors such as raised economic growth, raise in income of the rural masses, Independence of rural masses both political wise as well as economical wise and finally to enable easy access to various resources like education, medical care, job opportunities and so on.

Importance of Rural Development: Country improvement is a national need and has significant significance in India as a result of the accompanying reasons.

- About three-fourth of India's populace live in country territories, in this manner rustic advancement is expected to create country as entirety.
- Nearly 50% of the nation's national salary is gotten from agribusiness, which is real control of country India.
- Around seventy for each penny of Indian populace gets job through horticulture.
- Bulks of crude materials for commercial ventures originate from agribusiness and provincial division.

- Increase in mechanical populace can be legitimized just in provincial populace's inspiration and expanding the obtaining energy to purchase modern products.
- Growing dissimilarity between the urban tip top and the provincial poor can prompt political flimsiness.

Barriers of Rural Development

- People related
- Agricultural related problems
- Infrastructure related problems
- Economic problems
- Social and Cultural problems
- Leadership related problems
- Administrative problems

E-Agriculture: E-Agriculture concentrate on the upgrade of farming and provincial advancement through enhanced data and correspondence forms (IT & ICT). All the more particularly, e-Agriculture includes the conceptualization, outline, advancement, assessment and utilization of imaginative approaches to utilize data and correspondence advances (IT) in the country space, with an essential spotlight on horticulture. E-Agriculture is a generally new term and we completely anticipate that its extension will change and develop as our comprehension of the zone develops. Indian Agriculture adds to 18.6% of India's Gross domestic product, and roughly 59% of Indians get their work from the agrarian area. Data and Information Communication Technologies (ICT) assumes a basic part in Development and Economic development of the Developing nations of the World. Political, Cultural, Socio-Economic formative and behavioral choices today lays on the capacity to get to, assemble, dissect and use data and learning. ICT is the courses that transmit data and Knowledge to individual to augment their decisions for Economic and social strengthening.



Figure.1. E-Agriculture Process Cycle

Agriculture and Its Types: E-Agriculture is of three types namely (Varun Kumar, 2015) Subsistence (Varun Kumar, 2016) Mixed and Diversified (Varun Kumar, 2013) Specialized modern farming respectively.

Subsistence Agriculture

- Agricultural practices followed by a single family.
- High Risk involved.
- Leads of Low Production of goods and final products.

Mixed and Diversified Agriculture

- It is totally based on availability of credits, fertilizers, pesticides, Plants information and Current market trend.

Specialized Modern Agriculture

- It is totally based on the huge investment of capital and machine oriented technique of final goods production.
- This agricultural practice can be opted when the agricultural sector based industries were well developed.

ICT Tools and Its Usage Facilitating E-Agriculture: Cell phones and different ICT tools can give an expansive scope of open and social administrations to the poor in remote territories and they have turned into a fundamental and a vital utility for poor people. Agriculturists in remote towns use cell phones to get to the most current harvest costs and transient laborers use portable managing an account administrations to exchange cash to relatives back home. Progressively, arrive enrollment, training, social insurance and voting are being led electronically utilizing ICT. ICT is the conductors that transmit data and information to individual to extend their decisions for Economic and social strengthening. By coordinating innovation into advancement, more viable and quick arrangements can be found for reasonable human improvement and financial development. e-Agriculture includes utilization of data and correspondence advances (ICTs) in a creative approaches to use with an essential spotlight on agribusiness in the country improvement space.

Benefits of E-Agriculture:

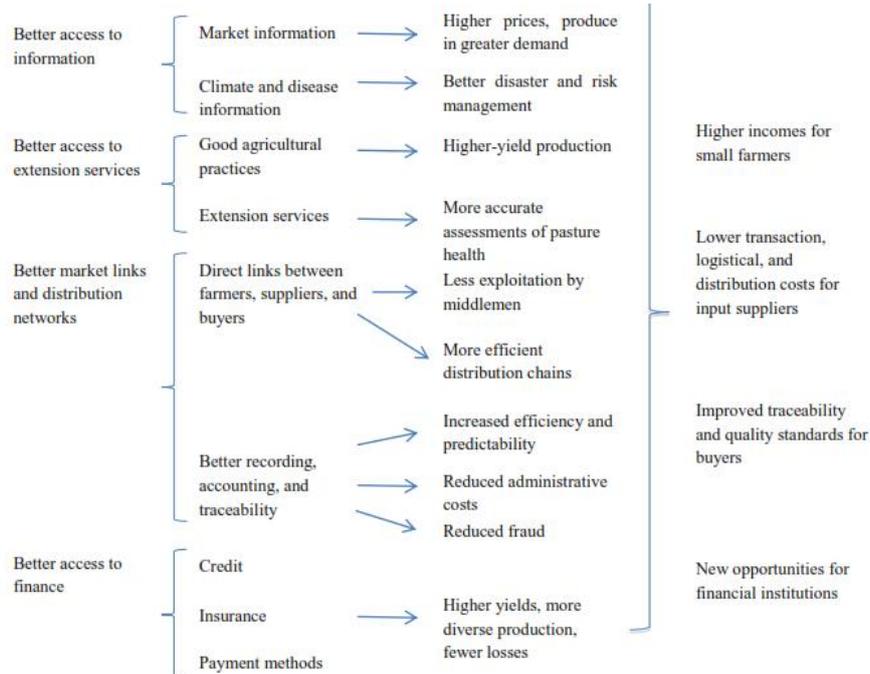


Figure.2. Benefits of E-Agriculture

Various ICT Based E-Agriculture Programs in India:

Table.1. Existing Various ICT Programs for Rural development in India

E-mitra	I-kisan
Drishtee	E-sagu
N-logue	Tel-nek
E-sagu	Csc(common services centre)
Akshaya	Kcc (kishan call centre)
India development gateway(indg)	Community information centres
Itc (e-choupal)	Rural e-seva
Krishi ville	Warna wired village project
Remote consultation centres (rcc)	Gyandoot
E-kuthir	Wwi
Rinfo1	Milk coops
Wpi(watershed project initiatives)	Community information centre
Bhoomi	Vercon
Warna	Kraid
Rural bazaar	Agora programme
Suwidga	Imark
Lok mitra	Ciard
Mahashakti	E-sewa
Mandi bhav	Kribhco(reliance kisan ltd)
Cabi's –café movel	Nanoganesh
Farm force	Machine to machine (m2m)-telefonica
Behtar zindagi	Farm management information services(fmis)
Reuters market light (rml) services	Progis

Smart Mobile Application and E-Agriculture

SRIJAN (self-Reliant Initiatives through Joint Action) in Madhya Pradesh, India.

- It is an Agricultural smart mobile application.
- Its aim is for monitoring Soya beans production.
- The result of this app is increased productivity, profitability and efficiency.

Jayalaxmi Agrotech

- It is an Agricultural smart mobile application.
- Updating farmers crop specific information by means of Audio/Visual tools.
- Works without internet.
- Information were been provided in regional languages as per the user choice.

M-Kissan

- It is an Agricultural smart mobile application.
- Information were been provided in regional languages as per the user choice.
- Updating farmers crop specific information like pest control, crop pattern, soil type, weather information, nearest market places, current market prices and so on.

M-ARD

- It is an Agricultural smart mobile application.
- Information were been provided in regional languages as per the user choice.
- Updating farmers crop specific information like, weather information, nearest market places, agricultural market prices, government services and extension services.

M-AGRI (IKSL, IFFCO, GSMA)

- It is an Agricultural smart mobile application.
- Information were been provided in regional languages as per the user choice.
- Updating farmers crop specific information like pest control, crop pattern, soil type, weather information, nearest market places, current market prices and so on.

M-Krishi

- It is an Agricultural smart mobile application.
- Information were been provided in regional languages as per the user choice.
- Updating farmers crop specific information like pest control, crop pattern, soil type, weather information, nearest market places, current market prices and so on.

Life Lines

- It is an educational smart mobile application.
- Educational Information were been provided to the rural teachers for teaching the rural farmers
- If any query is raised, for the raised query, the appropriate solution would be provided at the earliest.

Smsone

- It is an smart mobile application for extension services like SMS alerts of water supply and electricity supply.

Krishi Ville

- It is an Agricultural smart mobile application.
- Information were been provided in regional languages as per the user choice.
- Updating farmers crop specific information like, weather information, nearest market places, agricultural market prices and extension services.

Nokia Ovi Life Tools (OLT)

- It is an Agricultural smart mobile application.
- Agricultural Service provides farmers with personalized information pertaining to market prices of nearest mandis (market places), local news, weather alerts/forecasts, important information on schemes and subsidies, comprehensive and localized crop and advisory on a regular basis.

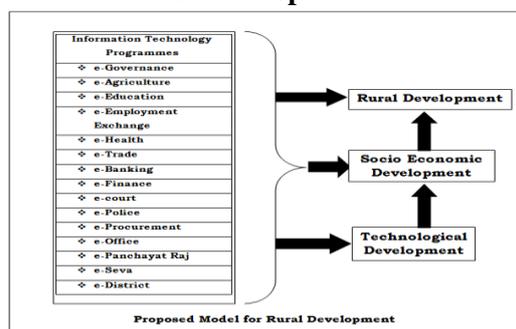
E-Agriculture and Rural Development

Figure.3. Rural Development Model

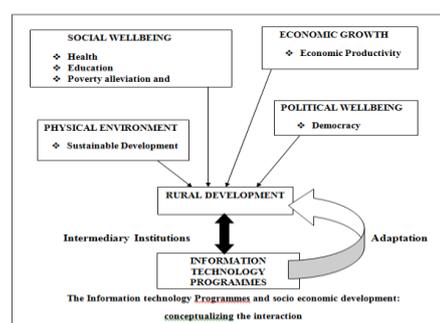


Figure.4. Information technology Programs and rural development

Katpadi Taluk And Its Rural Population: Katpadi taluk comes under Vellore district of Tamil Nadu, India. The headquarters of the taluk is Katpadi town. According to the 2011 census, the taluk of Katpadi had a population of 387,922 with 193,853 males and 194,069 females. There were 1001 women for every 1000 men. The taluk had a literacy rate of 74.58. Child population in the age group below 6 was 18,402 Males and 17,728 Females

Table.4. Villages under Katpadi Panchayat Union, its rural population.

Name of the Panchayat	Total Male	Total Female	Total Population
Ammundi	851	850	1,701
Arimuthumottur	1,831	1,866	3,697
Arumparuthi	1,174	1,239	2,413
Bramapuram	4,087	4,343	8,430
Eranthangal	1,029	1,108	2,137
Gugaiyanallur	1,490	1,580	3,070
Jabbarapet	2,489	2,438	4,927
Kandipedu	1,938	2,055	3,993
Karasamangalam	1,889	1,902	3,791
Karigiri	2,532	2,653	5,185
Karnampattu	1,490	1,529	3,019
Kuppathamottur	1,468	1,468	2,936
Mettukulam	1,550	1,733	3,283
Puttoor	1,037	1,041	2,078
Sembarayanellore	1,126	1,139	2,265
Saynur	4,586	4,492	9,078
Seerkaadu	1,682	1,773	3,455
Seevur	1,737	1,723	3,460
Thandalamkrishapuram	1,482	1,553	3,035
Vandranthangal	3,374	3,374	6,946
Vanjur	2,022	2,022	4,067
Total	40,864	42,102	82,966

2. METHODS

Table.5.Methods adopted in this research

Research type	Survey
Sampling technique	Random sampling
Instrument used	Structured questionnaire
Scale used	Likert scale
Questionnaire language	Tamil
Total questions in the questionnaire	20
Ratio Used	1:5
Total Villages Considered for the survey	20
Total population taken for the consideration for survey	200
Total Male taken for the consideration for survey	100
Total Female taken for the consideration for survey	100
Total no of questionnaires considered after survey	100
Total population considered after survey	200
Total Male population considered after survey	50
Total Female population considered after survey	50

Survey and Its Analysis: A Survey was conducted in randomly selected 20 villages and analysis was obtained through purposive sampling mechanism. Information were gathered with the help of structured questionnaire from various villages of Katpadi taluk. The number of respondent from each village is exactly 10 rural farmers based on the several factors like age, sex, qualification. The number of participants were 100. In which 50% were male and 50% were female. The majority of the participants were found to be in the age group of 40-60 and the other age classification ranges under the categories 20-40 and above 60 respectively. It was found that 70% of the rural farmers under various age groups were found to be uneducated and 30% were found to be educated and they do not possess awareness of various E-Agricultural services of the government. Only 2% of the rural farmers in the age group of 20-40 have awareness of various services of government as E-agriculture is concerned.

3. RESULTS

From the analysis is clear that rural farmers of Katpadi Taluk lack awareness on E-agricultural services and various ICT programmes of the Government and private sectors. Therefore awareness of IT and its various services

had be provided to the rural masses in a speedy phased manner so as to enjoy the benefits of various IT services by rural farmers in katpadi Taluk in Vellore District of Tamil Nadu, India.

4. CONCLUSION

From the study we came to know that E-agriculture services provides several benefits like increased productivity, increased quality in products, high income, increased efficiency, raised Profit, easy knowledge gathering about climatic condition, humidity, soil type, crop pattern etc. and can share agricultural Information in a speedy manner. E-agriculture facilitates timely and accurate updates regarding current market price & market demand to farmers at lower cost and at lower risk by means of ICT enabled devices such as mobile phones, radio and television and through internet services. Therefore creating awareness among the rural masses regarding IT and ITC programs, plays vital role for achieving rural development. If IT and ITC awareness had been created among the rural masses that may leads to social and economic wellbeing of rural masses that facilitates rural development as well as nation development.

Recommendations: I recommend five important regulations as be followed strictly to enhance the E-Agriculture techniques to be widely spread among the rural masses for gathering information ,sharing information about the key concepts of farming techniques, which yields to high productivity in form of yielding and high profitability in form of revenue generation.

Regulation-1

- New modern techniques and recent technology advancement of agricultural practices had to be supported and encouraged.
- Even the technology advancement should not affect the farmers' involvement in agricultural practices.

Regulation-2

- Central government and state government as to come up with better policies and framework with regards to E-agriculture.
- Government policies and framework should provide equality in financial credits and issue of latest modern tools and services to the farmers. Normally the higher section of farmers would be benefitted by these privileges of government in day today life.

Regulation-3

- Unequal income that prevails in between the large scale farmer and the small scale farmer as to be eradicated.
- Therefore large scale farmers land ownership as to be taken by the government and it as to be provided to the farmers who possess no land, such kind of land reforms had to be framed by the government so as to stop unequal distribution of rural income in rural sector.

Regulation-4

- Integrated rural development as to be achieved not only through agricultural upliftment, but also in form of high yielding and high profitability through by means of various non-agricultural practices among the rural masses on rural areas facilitated by government.
- So each and every masses resides in rural India as to be in easy access with health care facility, educational facility and good housing.

Regulation-5

- Various new methods and practices of agriculture facilitated by the government may leads to various upliftment in lives of rural masses resides in rural India.

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