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DOI: http://ijmer.in.doi./2022/11.03.124

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN:2277-7881; IMPACT FACTOR :7.816(2022); IC VALUE:5.16; ISI VALUE:2.286
Peer Reviewed and Refereed Journal: VOLUME:11, ISSUE:3(7), March: 2022
Online Copy of Article Publication Available (2022 Issues): www.ijmer.in
Digital Certificate of Publication: http://ijmer.in/pdf/e-Certificate%20of%20Publication-IJMER.pdf
Scopus Review ID: A2B96D3ACF3FEA2A
Article Received: 2nd March 2022
Publication Date:10th April 2022
Publisher: Sucharitha Publication, India

SOURCES OF INFORMATION FOR AGRICULTURE PRODUCTION AND EXTENT OF BENEFITS DERIVED -A STUDY ACROSS VARIOUS SOCIO-ECONOMIC GROUPS IN ANANTHAPURAMU DISTRICT (A.P)

Dilip Bathena

Abstract

Usage of information in non-conventional forms like Information and communication technology (ICT) and information technology (IT) enabled systems have benefitted those engaged in agriculture production. People belonging to various socio-economic groups use these systems based on their abilities, skill and their position in the social and economic hierarchy for their specific agriculture activities.

The agriculture sector is unique. They face issues that emanates from nature like weather, seasons, rainfall which effect productivity as well as the people engaged in agriculture and their attitudes and beliefs. These usually vary across castes and across income levels. Information and communication technology (ICT) has exhibited success in overcoming many of the issues. There are various ICT initiatives taken by Government of India as well the state government of AP.

This Usage of Modern source of Information like TV, Radio, and internet, mobile can alter the productivity of crops through clear and simple information at time at right targeted audience the farmer. It's generally been found that many farmers in rural areas do not take full advantage of existing ICT's. Many farmers in rural areas do not use ICT sources of information due to poor perception. This may be because of lack of awareness and exposure, the intricacies and the complications involved in ICT application. These farmers thus are not able to reap the maximum benefits of ICT initiatives in rural communities and thus remain excluded from the realm of prosperity.

The location chosen for the study is Ananthapuramu district of Andhra Pradesh state. The district is chosen purposely as it ranks low in GDP; almost in the last category,

Compared to economic and other developments indicators of Andhra Pradesh. The district also has very low rainfall that impacts the climate and agriculture productivity and thus adversely affected all other sectors of the economy.

This Study analyzes the various sources of information for agriculture production and related activities or rural community in the selected study area of Ananthapuramu district. A sample size of 320, in 2 villages 40 respondents in each village 2 villages from each Mandal, Itkalapalle and Rachanapalle of Anantapur Mandal, Peddapappur, Juttur of Pedapappur Mandal, Kunuthuru and Chigicherla from Dharmavaram Mandal, Puttaparthi (rural) and Pedapalle from Puttaparthi Mandal in Ananthapuramu District of Andhra Pradesh was collected. This Study focuses on improving ICT and giving suggestions for improving perception and awareness of ICT programmes to enable the rural communities to benefit maximum from the Government ICT Initiatives and schemes. The Findings revealed that decrease in the benefit as evident from the table may be attributed to their social backwardness and not to the inability to access the modern sources as their income status would easily enable to incur expenditure on these sources.

Keywords: Perception, Agriculture, ICT, Digital Banking, Digital payments, Rural Communities, farming. Information, Use.

Introduction

The agriculture sector is a major contributor to the livelihoods of many who live in the rural areas. Even though it provides large amount of employment opportunities in the rural areas its contribution its contribution to the Gross Domestic product (GDP) has been declining with this service sector being the highest contributor followed by industries and manufacture sector, thus agriculture has been contributing least towards GDP at present. The sector faces issues in the production systems, uncertain and low-quality inputs, and dependence on weather, post production and harvesting technologies including storage spaces, marketing problems pricing problems, and the involvement of middle men and their exploitation. The farmers engaged in agriculture are riddled with attitudes and beliefs. Most of them use outdated inefficient methods of cultivation and have very little knowledge of maximizing their returns and profits through improved productivity and markets. They lack information at the right time for their activities, there seems to be huge gap in the way the information is passed on to the farmers for their activities, moreover the problems faced by the farmers usually depend upon their position in society. These usually vary across castes and across income levels. ICT has exhibited success in overcoming many of the issues. There are various ICT initiatives taken by Government of India as well the state government of AP. The location Chosen for the study is Ananthapuramu district of Andhra Pradesh state. The district is chosen purposely as it ranks low; almost in the last category, considering economic and other developments indicators of Andhra Pradesh like lowest contribution to SGDP, low rainfall, literacy, lessinfrastructure. The district also has very low rainfall that impacts the climate and agriculture productivity and thus adversely affected all other sectors of the economy.

There is an increasing shift from standalone ICT initiatives to much more integrated ICT initiative that basically works across the value chain of production input and output systems, marketing systems etc. Right Information at right time is required for farmers for agriculture inputs like seed fertilizers pesticides, and their activities that bring a basic agricultural product from production in the

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field to the whole sale markets and to the retails from where it reaches the final consumer where at each stage value addition takes place for the product. ICT plays vital role in linking these activities in a very seamless form and thus affecting the operational efficiency which intern helps the rural communities. As most of the villages are remotely placed, where facilities and infrastructure is weak thus making ICT a necessity to play a major role in removing gap between access to facilities, delivery of output by the needed information and information required at remote places and overcome other infrastructure bottlenecks in rural India. It can be also observed that rural areas are mostly starved of information in all areas which otherwise could benefit them in their agriculture activities.

Modern Sources of Information which are ICT based and are amenable to remotely functional technologies though various IT based ICT technologies with devices like Mobile, Land Line Telephone, Internet, Computers Desktop etc can overcome these problems.

It is evident from past research and literature that Rural ICT users who had positive perception had better usage and effectiveness of the ICT application. So, this shows that perception on ICT plays a vital role in impacting the end user's usage and effectiveness of their ICT application. Perception and information quality of ICT are major drivers especially for small farmers. Positive perception will help to have better level of usage and effectiveness thus leading to effective ICT application. Therefore, improving efficiency of ICT applications and the perception of the user would lead to better rural outputs and which can strengthen rural economy and make the rural users more competent to be ready with the fast competitive world specially in the field of agriculture production.

It is also found that study on perception of ICT for rural communities are few in number especially in India and particularly in Andhra Pradesh, implying, it's essential to conduct perception-based study on ICT usage in rural communities to help the rural society. Indian society has been witnessed of transformation from an industrial society to an information society. This change was possible due to advancements in information technology, telecommunication, computing and microelectronics. And known popularly known as Information and communication technology.

Specific problems of rural community

Many farmers living in rural areas still travel far distances for receiving and making payments for their goods and services. They still don't have the ability to use the ICT devices efficiently. They are not still aware of the possibility saving time and money by using these modern devices.

It was also observed that many farmers are debt-ridden and do not have sufficient funds for investing in the agriculture, the marginal and small farmers practice substance agriculture and generate a very low marketable surplus this traps them into vicious circle of poverty in indebtedness leading to desperation and suicides. Many private financiers, chit fund and other private lenders were exploiting them. Making survival challenge. This was mainly due to lack knowledge about various schemes and aids of the government including subsidies available for farmers and information for marketing their produces at the best prices.

Objectives

1. The Main Objectives of the Paper is to examine usage of information in non-conventional forms and their benefits derived by the farmers. For agriculture production across various socio-economic groups in the study area of Ananthapuramu District (A.P).
2. Suggesting appropriate methods for an efficient information delivery system through ICT initiatives that benefit the farmers.

Research Methodology

To find answers the study adopts three methods to examine and understand the problems faced by the users of ICT technologies for agriculture production.

1) Empirical study
2) Participatory rural analysis (PRA)
3) Focus Group Discussions (FGD)

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For the Empirical study the following variables has been considered for analysis.

Socio economic Variables

Caste Categories

1. Other Castes (OC)
2. Backward Caste (BC)
3. Scheduled Caste (SC)
4. Scheduled Tribe (ST)

Income Groups

1) High Income Groups (HIG)
2) Middle Income Groups (MIG)
3) Low Income Groups (LIG)

Cross Tabulations

Cross tabulation method has been used to quantitatively analyze the comparatively multiple variables observations, Cross tabulation groups variables to understand the relationship between different variables. It can also correlate change from one variable grouping to another. Cross tabulation is used in statistical analysis to find patterns, trends, and probabilities within raw data. Cross tabulation has been performed generally on categorical data that was divided into mutually exclusive groups. Row and column percentage calculations have been done to show the frequency distributions mostly between caste categories among various income groups for variables under study.

Participatory Rural Appraisal (PRA) recently renamed Participatory Learning for Action (PLA), is a methodological approach that is used to enable farmers to analyze their own situation and to develop a common perspective on natural resource management and agriculture at village level.

A focus group discussion (FGD) is a good way to gather together people from similar backgrounds or experiences to discuss a specific topic of interest.

Inferences from Empirical Analysis

In Table 1 gives the Sources of information and extent of benefits derived by the farmers across caste and Income for the agriculture production sector activities. The percentages distribution of benefits derived by the sampled respondents from Various Sources of Information has been cross tabulated. It can be observed that in higher income group (HIG), OC, & BC very Strongly Benefited from the ICT Sources of Information like Radio, TV, Phones (Land and mobile) and Internet, with percentages ranging from of 56 % - 93%. The HIG Communities members from SC and ST also benefitted to some extent from ICT based Sources with percentages ranging from 33- 50. The decrease in the benefit as evident from the table may be attributed to their social backwardness and not to the inability to access the modern sources as their income status would easily enable to incur expenditure on these sources.

It can be observed that in Middle Income Group (MIG), the community members from OC and BCs Strongly Benefited with percentages a range of 22-60 from the ICT based sources. SCs and STs derived little benefit from ICT based sources.

It may be seen that, in Lower Income group (LIG), the people belonging to BC and OC communities, Strongly Benefited from. The Government Extension functionaries, in the range of 40% -66.7%, they also depended on friends and neighbors to the extent of 33%-40%, the SC and ST did not show strong benefits derived from the internet with. The Same Community has lesser or no benefits derived in the case of Radio, TV and Phone whereas, a large number of the SCs and ST have benefited from friends and neighbors, Local Input dealers, Extension workers Daily Newspapers. Indicating that income group was a major factor in determining ICT use.

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Table 1 Sources of Information and extent of Benefits derived across Castes and Income Groups for Agriculture Sector activities.

Income-Group	Benefit Scale	Strongly Benefitted				Benefitted				No Benefit				Negative Impact			
	Source of	BC	OC	SC	ST	BC	OC	SC	ST	BC	OC	SC	ST	BC	OC	SC	ST
High Income Group	1.Freinds and	26.7	13.3	50.0	33.3	20.0	53.3	0.0	33.3	33.3	33.3	0.0	33.3	20.0	0.0	50.0	0.0
	2.Govt	20.0	20.0	0.0	66.7	30.0	46.7	0.0	16.7	26.7	33.3	50.0	0.0	23.3	0.0	50.0	16.7
	3. Local	30.0	26.7	0.0	16.7	20.0	46.7	100.0	16.7	26.7	26.7	0.0	16.7	23.3	0.0	0.0	50.0
	4. Daily	23.3	13.3	50.0	0.0	20.0	40.0	50.0	16.7	30.0	46.7	0.0	66.7	26.7	0.0	0.0	16.7
	5. Radio	66.7	100.0	50.0	33.3	33.3	0.0	50.0	16.7	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
	6. T.V	56.7	93.3	50.0	33.3	26.7	6.7	0.0	0.0	16.7	0.0	50.0	66.7	0.0	0.0	0.0	0.0
	7. Phone	66.7	100.0	50.0	33.3	33.3	0.0	50.0	16.7	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
	8. Internet	56.7	93.3	50.0	33.3	26.7	6.7	0.0	0.0	16.7	0.0	50.0	66.7	0.0	0.0	0.0	0.0
Middle Income Group	1.Freinds and	19.4	25.0	40.0	33.3	22.6	35.0	40.0	33.3	35.5	25.0	0.0	33.3	22.6	15.0	20.0	0.0
	2.Govt	22.6	20.0	25.0	0.0	19.4	30.0	25.0	0.0	32.3	40.0	25.0	33.3	25.8	10.0	25.0	66.7
	3. Local	22.6	30.0	25.0	0.0	22.6	25.0	25.0	66.7	25.8	35.0	0.0	0.0	29.0	10.0	50.0	33.3
	4. Daily	22.6	30.0	0.0	0.0	25.8	30.0	0.0	0.0	35.5	30.0	50.0	33.3	16.1	10.0	50.0	66.7
	5. Radio	25.8	25.0	0.0	0.0	48.4	30.0	25.0	33.3	25.8	40.0	0.0	33.3	0.0	5.0	75.0	33.3
	6. T.V	61.3	60.0	0.0	0.0	29.0	40.0	25.0	33.3	9.7	0.0	0.0	0.0	0.0	0.0	75.0	66.7
	7. Phone	32.3	50.0	0.0	0.0	25.8	30.0	25.0	0.0	25.8	20.0	25.0	66.7	16.1	0.0	50.0	33.3
	8. Internet	29.0	45.0	0.0	0.0	22.6	15.0	50.0	0.0	22.6	40.0	0.0	66.7	25.8	0.0	50.0	33.3
Low Income Group	1.Freinds and	21.7	22.2	40.0	33.3	17.4	11.1	60.0	66.7	26.1	44.4	0.0	0.0	34.8	22.2	0.0	0.0
	2.Govt	34.8	5.6	40.0	66.7	13.0	33.3	20.0	33.3	34.8	44.4	40.0	0.0	17.4	16.7	0.0	0.0
	3. Local	26.1	22.2	40.0	0.0	21.7	27.8	60.0	100.0	43.5	33.3	0.0	0.0	8.7	16.7	0.0	0.0
	4. Daily	13.0	27.8	40.0	0.0	26.1	33.3	20.0	0.0	39.1	22.2	40.0	33.3	21.7	16.7	0.0	66.7
	5. Radio	17.4	5.6	20.0	33.3	26.1	38.9	20.0	0.0	30.4	50.0	20.0	66.7	26.1	5.6	40.0	0.0
	6. T. V	13.0	22.2	0.0	0.0	21.7	16.7	0.0	0.0	43.5	55.6	60.0	66.7	21.7	5.6	40.0	33.3
	7. Phone	4.3	11.1	0.0	0.0	8.7	44.4	0.0	0.0	47.8	27.8	40.0	0.0	39.1	16.7	60.0	100.0
	8. Internet	26.1	22.2	0.0	0.0	8.7	27.8	0.0	0.0	39.1	50.0	20.0	0.0	26.1	0.0	80.0	100.0

While we examine the status of negative impact from the sources of information for those who were not affected by these sources of information, we find that a good percentage of BCs and OC also failed to derive any good benefits from the first four sources of information that Friends and Neighbors, Govt. Extensionaries, Local Dealers and Daily Newspapers which considered as conventional or traditional source of information.

Most of the people from the community of SC and ST relied on Conventional Sources for their information needs. Their main Conventional Sources information needs were met by friends, Local input Dealers, Govt. Extension workers, and to a lesser extend from Newspapers for the information on Agricultural activities.

It is observed that Most of SC and ST had no benefit from Radio and TV. While BC and OC had negative effect from the friends and neighbors. Whereas, it can be observed that SCs and STs had mostly negative influence from ICT based information systems; the reason may be attributed to the fact that they do not have access to these latest sources and gadgets due to their being in lower income bracket and social backwardness. OC and BC had Negative Influence mostly from Friends and Neighbors as their dependence on technology is more. The negative benefits can accrue because the information they received from friends and neighbors may not be authentic or verified. The government extension workers will not be in position to give authentic, information for the production aspects of the agriculture and accurate information for production, harvest etc. This can lead to problem of wrong decisions based on such unverified information.

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Table 2 Ranking of Information sources across Caste and Income Categories for Agriculture Sector activities.

Income Group	HIG				MIG				LIG			
Source of Information	**BC**	**OC**	**SC**	**ST**	**BC**	**OC**	**SC**	**ST**	**BC**	**OC**	**SC**	**ST**
1.Freinds and Neighbors	7	7	7	2	7	5	1	1	5	8	1	2
2.Govt Extensions Functionaries	6	6	8	1	7	8	2	7	1	7	3	1
3. Local Input Dealers	5	5	4	7	6	6	3	2	1	4	1	3
4. Daily News Papers	8	8	1	8	5	4	8	7	4	1	3	6
5. Radio	1	1	1	3	2	6	6	3	3	5	5	4
6. T.V	3	3	5	5	1	1	6	4	7	6	6	5
7. Phone (Including Mobile phones)	1	1	1	3	3	2	5	5	8	3	7	7
8. Internet	3	3	5	5	4	3	4	5	6	2	8	7

Source: Primary Data sampled

Table 2 shows the ranks obtained for the sources of information caste wise and income group wise based on the preference for the information expressed by the sample responded. It can be observed that in HIG the BC preferred and gave first rank for phones and radios followed third rank for TV and internet fifth rank for Local input dealers and lower ranks for government extension workers. The low ranks of seventh is given to friends and neighbors and eight to Daily newspapers this clearly shows that The BC depended on non-conventional sources of Information for their needs in the agriculture sector.

The same trend was observed for OC in the HIG. Indicating that the BC, OC preferred non-conventional sources to conventional sources but this not the case for SC, ST. For the SCs in the HIG it can be seen that they gave first rank to Daily newspapers and radios and phones, and ranked internet as their fifth rank followed by friends and neighbors seventh rank, Government extension worker eighth rank. The Government functionaries are not easily accessible to the SC. In the case of ST in HIG they gave rank one to Government functionaries and Rank of two to friends and neighbors followed by phones and Radios ranked third. They gave internet and TV the fifth rank. Daily newspapers were ranked eighth. In HIG it's interesting to note that information from daily newspapers were ranked eighth or last by BC, OC, and ST.

Analyzing the ranks for the MIG category it can be found that BC ranked TV first, followed by radio ranked second, Phones ranked third, and internet ranked four, they gave lowered ranks to the friends and neighbors and government extensionaries, The OC in Middle income group followed almost similar trend for TV, Phone, Internet, But the SC in the MIG ranked information derived from friends and neighbors as number 1.and gave fourth and fifth rank to internet information. Indicating a more dependence on traditional sources and less dependence on ICT based sources.

Analyzing the Ranks given by respondents The BC ranked Government extension workers and Local input dealers as number 1, this trend was evident in SC who ranked Local input dealers as number 1 and The Government Extension functionaries. The friends and neighbors.

In the LIG, Lower ranks were given to internet and phone by BC, OC, and ST. The OC who gave second to the internet and third rank to the phones for getting the information. The ranking has been influenced by the access to the sources of information in this income group. It clearly shows that traditional sources are more favored than modern sources in the LIG among the castes.

Recommendations and Conclusions

- The ICT providers specially the designers should design ICT applications by consulting the people at the ground level and also simultaneously take feedback from rural users to make better ICT application for their specific rural farming activities, in terms transactions related to their Businesses or farming anywhere any time Online.
- Relevant research is needed to bridge this gap between practice and policy including evaluation of impact of modern ICT based sources of information in agriculture
- They can also procure seeds, fertilizers etc cheaper by comparing and researching about raw material online using various ICT facilities.
- They can also Sell and receive money online with help of ICT applications and portals in internet as well as mobile based applications.

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- Rather than developing ICT Applications blindly Government should check the Actual Problems of the users and their specific needs so as to make the application demand driven.
- Government should take User Acceptance / opinion Of the ICT Applications before implementing /launching them at different locations for regular use.
- ICT Training and extensions should be designed specifically for rural communities needs and based on their skill. So, this gap should be filled.
- Proper awareness and training problems should be conducted. Regarding modern ICT based Sources of information.

Conclusion

The decrease in the benefit evident from the table for the higher income gropus may be attributed to their social backwardness and not to the inability to access the modern sources as their income status would easily enable to incur expenditure on these sources.

Most of the people from the community of SC and ST relied on Conventional Sources for their information needs. Their main Conventional Sources information needs were met by friends, Local input Dealers, Govt. Extension workers, and to a lesser extend from Newspapers for the information on Agricultural activities.

OC and BC had Negative Influence mostly from Friends and Neighbors as their dependence on technology is more. The negative benefits can accrue because the information they received from friends and neighbors may not be authentic or verified.

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