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Constraints Faced by Farmers and Extension Personnel of Dimapur District of Nagaland in the use of Icts While Enterprising Agriculture and Allied Activities

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ABSTRACT

The main constraints faced by farmer in using ICTs on enterprising agriculture and allied activities were: The 'Lack of awareness about different sources of information' followed by 'Privation of proper education facilities', 'Insufficient regional specific information & expatriate language', 'Lack of knowledge & skill in operating ICTs', 'Complexity in using ICTs', 'Poor socio-economic status', 'Poor network and low internet accesses', 'Negative attitude towards ICTs', and 'Erratic power supply' were the constraints faced by farmers in use of ICTs. The major constraints faced by extension personnel in using ICTs while providing agro-advisory services were: 'Inadequate accessibility to internet facilities', 'Inadequate infrastructure', 'Poor mobile phone network signal', 'Lack of ICT projects or initiatives', and 'Erratic power supply'.

1. Introduction

Attaining sustainable agricultural development is a worldwide strategic concern. Information and Communication Technologies (ICTs) have a potential to contribute to achieving significant economic, social and environmental benefits. Nagaland is one of the eight sister states of North-East Region of India and it is predominantly an agrarian economy where agriculture is the major contributing only 0.19 per cent to the GDP of India (Statistical Abstract, Deptt. of Economics & Statistics, GoN, 2011-12) and thereby importing tons of food grains and other essential products due to lack of self-sufficiency. There is much needed impetus to alleviate the agricultural scenario in Nagaland and explore the vast potentialities of the state, of which critical agricultural information on agriculture and allied enterprises in right place at right time to right person stands at a pivotal position to ultimately take agriculture to a whole new level. It has also been observed that Information and Communication Technologies (ICTs) users in contributing sector with 71 per cent of the population living in rural areas, making the economy of the state dependent on agriculture. The Government of India has consecutively awarded the Krishi Gramin Award to Nagaland Agriculture Department for the years 2011, 2012, 2013 and 2014. Despite most of its population being dependent on agriculture for their living, the productivity is very low Nagaland have increased manifold within a decade and those portions of the population who used no communication tools at all have drastically decreased but there was a need to ascertain the constraints faced by farmers and extension personnel in using ICTs while enterprising agriculture and allied activities. Hence the study was taken up to study the Constraints faced by Farmers and Extension Personnel of Dimapur District of Nagaland in the use of ICTs while enterprising Agriculture and Allied Activities.

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2. Methodology

For this investigation, descriptive research design was used. Dimapur district from Nagaland was purposively chosen as no studies had been carried out previously in the study area with more ICT access, better network coverage and infrastructure with highest rural literate population. From Dimapur district, two (Community and Rural Development) CRD blocks were selected randomly and three villages from each selected CRD block were selected randomly. Further, twenty farmers from each village were selected randomly. Thereby a total of 120 farmers were determined from identified six villages. Further, a total of 20 extension personnel working in different agriculture related extension services from Dimapur district were interviewed randomly based upon availability or willingness to cooperate. Overall, the sample size of the study was140 respondents. An interview schedule was developed for data collection and appropriate statistical tools like frequency, percentage and ranking techniques were used for analysis for data.

3. Results and Discussion

3.1 Constraints faced by Farmers in the use of ICTs while enterprising Agriculture and Allied Activities

The data in Table 1 shows the constraints faced by the farmers while enterprising agriculture and allied activities, from most important to least. The constraints were measured using the Garrett's ranking technique.

Perusal of Table 1, could revealed that **'Lack of awareness about different sources of information'** was the most prioritized problem as reported by of the farmers with the Garrett Mean Score (GMS) of 77.03. This might be due to the milieu that the ICTs at the hands of common farmers were being utilized mainly for personal communication only except a very few progressive farmers who used ICTs for seeking information on farm production and management. And as such, majority of the farmers were not aware of various sources of information that they could access to gain information they need and to get solutions to their problems which could benefit them. The lack of awareness was due to absence of localized sensitization programs even though there are a number of ICT services, portals, help lines and applications launched at the national level that could be utilized by the farmers.

During the process of field visit and personal interview in the study, it was observed that the help line of Kisan Call Center were not aware by most of the farmers.

Table 1. Constraints faced by Farmers in using ICTs *(n=120)*

Constraints	Garrett Mean Score	Rank
Lack of awareness about different sources of information	77.03	I
Privation of higher education facilities	75.54	II
Insufficient regional specific information & expatriate language	70.49	III
Lack of knowledge & skill in operating ICTs	65.04	IV
Complexity in using ICTs	63.91	V
Poor socio-economic status	62.63	VI
Lack of poor network and internet access in rural areas	49.91	VII
Negative attitude of the people towards ICTs	41.51	VIII
Erratic power supply	32.06	IX

There were no significant efforts for promotion of application of ICTs in agriculture and allied through projects and programs or are still at the budding stage.

'Privation of proper education facilities' was second ordered constraint (GMS of 75.54) being faced by them. Majority of the farmer had an educational qualification of up to middle school and most of them were not fluent in English or Hindi. The technical terminologies which were essential while using modern ICTs were not known/ recognized by the farmers. And even though the literacy rate of the study area was high, digital literacy was very low which might be due to flaw in the stratagem in working out the literacy where the individual's ability to read and write was considered. Hence, lack of higher education facilities for farmers remained one of the important constraints.

The third major constraint (GMS of 70.49) lingered with as reported by farmers was **'Insufficient regional specific information & expatriate language'**. This issue was due to lack of ICT initiatives or services implemented in the study area in order to serve the needs of the rural population regarding agriculture or rural development activities. Blanket approach on agro-advisory services provided by extension personnel, scientists of State Deptt. of Agriculture and Allied were not fruitful as the services were not specific. Regional specific and personalized agro-advisory services to the farmers were lacking in the study area and the farmers could not derive the benefits as it had been intended.

With GSM of 65.04, **'Lack of knowledge & skill in operating ICTs'** remained the next important constraint being faced by farmers in using ICTs. Mobile phones appeared to be the most utilized ICT but it was found that the usage was limited to social communication purposes only as they felt that they would not be able to understand the technical operations and therefore the farmers remained confined to simple featured mobile phone handsets with less facilities. Due to poor awareness and sensitization, farmers kept distance from using smart phones, computers, internet *etc*.

The fifth important constraint as identified by farmers with the GSM of 63.91 **was 'Complexity in using ICTs'**. Due to perception of difficulty by farmers on using advanced ICT, despite of its easy features was one of the prime reasons why the farmers were confined to personal communication and use of only elementary communication tools. Apart from voice calling, several other operations were deemed as difficult to use and understand by the old farmers.

The **'Poor socio-economic status'** (GSM of 62.63) of the farmers were also found to be one of the constraints standing in the way of making ICT an important tool to empower the farmers through its usage. Even though the ICT tools are constantly becoming cheaper like mobile phones, the smart phones costs higher than simple phones which goes beyond the capability of many farmers to purchase as the earning has to be distributed among various uses right from inputs, consumption, educational expenses of children, festivals, labour charge, *etc.* where the financial needs are never ending. So the farmer carefully allocates his resources to the topmost priorities only and manages to purchase only simple mobile handsets which have become a necessity. Also, to take advantage of smart phones, the charges for mobile data has to be considered and apart from mobile phones, other ICT tools are considered as a luxury for poor farmers.

Another entailing constraint faced by farmers was **'Poor network and low internet accesses'** with the GMS value of 49.91. Since most of the villages were located in remote areas and also due to the undulating topography of the study area, the network signal remained week rendering poor quality services. The farmers also commented that the network signals fluctuate from time to time which becomes a problem for them. Having **'Negative attitude towards ICTs'** by farmers with GMS of 41.51 posed to be one of the considerable constraints. Especially the old and uneducated farmers were more comfortable and accustomed to one to one interaction while seeking and receiving agro-advisory services from the agricultural extension personnel and other scientist related to farming and its allied enterprises. So, having a negative stereotype towards ICT usage by them led to disenchantment on diffusion of agricultural innovations to their farming systems.

The electric power supply remained a main dismay during the wee agricultural period of monsoon months due to adverse rainfall. Since the farming in study area was primarily a rice-based agricultural system, unavailability of power supply trickled down the constant usage of ICTs by farmers for any agro-advisory services. So, with the GMS of 32.06, **'Erratic power supply'** was found to be a substantial constraint faced by farmers in the study area.

The above findings were in consonance with the findings of Dhaka and Dhaka and Chayal (2010) and Adhiguru and Devi (2012)

3.2 Constraints faced by Extension Personnel in the use of ICTs while enterprising Agriculture and Allied Activities

The prioritized constraints faced by the extension personnel in the use of ICTs while enterprising agriculture and allied activities from most important to least are depicted in Table 2.

Table 2. Constraints faced by Extension Personnel in using ICTs *(n=20)*

Constraints	Garrett Mean Score	Rank
Inadequate access to internet facilities	14.39	I
Inadequate infrastructure	12.81	II
Poor mobile phone network signal	12.16	III
Lack of ICT projects or initiatives	10.76	IV
Erratic power supply	10.61	V

The first and foremost prioritized constraint faced by the extension personnel was **'Inadequate accessibility to internet facilities'** with GMS of 14.39. During the study, it was observed that the village and block level agriculture and allied offices did not have proper internet connection. The internet connectivity, if happened to be, was found to be highly fluctuating and many online based official assignments and jobs could not be accomplished in time. Since, internet remained *sine-qua-non* for any official staff, agricultural extension personnel endured no exception.

The second ordered constraint as reported by extension personnel was **'Inadequate infrastructure'** on ICTs with GMS of 12.81. The village and block level agricultural and animal husbandry offices did not have proper provisions of computers, printers, internet and basic amenities required to carry out the work most effectively. The Agriculture & Allied Services, Rural governance, Commercial services, and Social services of the extension personnel remained handicapped when there was inadequate or no facility. As it can be stated that proper infrastructure in any work station or assignment is highly correlated to output, outcome and impact. The third major constraint (GMS of 12.16) lingered with as reported by extension personnel was **'Poor mobile phone network signal'**. This might be due to the weak signal alongside the undulating geographical terrain of the villages which distorts the mobile phone signal. The interference in the relay of signals was reported by the extension personnel especially during their trainings or on-field duties in the remote villages. The ephemeral connectivity become very inconvenient to the extension personnel during follow-up and consultation activities with the extension personnel.

One of the important constraints reported by extension personnel with the GMS of 10.76 pertaining to poor usage of ICTs was **'Lack of ICT projects or initiatives'**. Since there were no such initiatives taken up in the study area, it had no scope in the improvement of facilities or infrastructures as well as the extension personnel had no opportunity to serve better the extension personnel in providing and accessing information at right time and right place through the use of ICTs.

The extension personnel reported that **'Erratic power supply'** was one of the profound constraints (GMS of 10.61) being encountered while using ICTs. As power supply is the backbone for ICT applications and services, the absence or fluctuation led to unfinished agenda while performing assignments for extension personnel. Importantly, many such electronic gadgets were constantly used by extension personnel while delivering their services, for instance, the use of desktop and projectors during training and even official presentations. The above findings were parallel to the findings of Prodhan and Afrad (2014) and Umar *et al.* (2015)

Conclusion

In the light of the above facts and observations the study concludes that awareness followed by sensitization with hands-on exposure on use of ICTs services should be provided to farmers and their family, based on their need and competencies. Education embedded with ICT based instructional technologies should be encouraged at village and block levels in the state. The advisory services *viz.* Voice Calls, Video Calls, SMS, MMS *etc*. pertaining to agriculture, animal husbandry, rural governance and income generating ventures through ICTs should be customized in local languages and its derivatives. The responsible departments *viz.* department of agriculture & allied, department of electricity and state planning commission along with private mobile phone service providers in the state should come to a platform and consent a memorandum of understanding to support the agro-advisory and its allied services to the farmers by extension personnel a mandatory.

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