



Perceived Gratification, Difficulties and Suggestion among the Registered Farmers of Integrated Technology Enabled Agri Management System (iTEAMS), Meghalaya, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author NP designed the study, collected the data performed the statistical analysis and wrote the first draft of the manuscript. Authors SSBB and SS made the necessary corrections. All authors read and approved the final manuscript.

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ABSTRACT

The 1917 iTEAMS (Integrated Technology Enabled Agri Management System) is an initiative by the government of Meghalaya employing ICT to fulfil its objectives of providing organised evacuation logistics, access to markets and agro-advisories to the farmers upon registering with them. According to the recent data, a total of 84,246 farmers are registered with iTEAMS so far. The present study was conducted to understand the perceived gratification, difficulties and suggestions among the registered farmers of iTEAMS. Empirical data were collected from 120 registered farmers from Ri bhoi district of Meghalaya, India. Findings of the study reveal the majority of farmers were

satisfied with the timing of the services offered by iTEAMS, followed by the services provided by the centre to them during the Covid-19 lockdown, in the sale of their produce. The farmers' biggest challenge, according to the findings, was a lack of understanding of how the centre worked. Farmers also expressed a lack of interest in availing of the services. It was observed that the farmers were not completely aware of iTEAMS and there was a lack of interest among the farmers to avail the services. There is a need to spread awareness not just about ICT among the farmers but also about the very many benefits that can be drawn from employing it.

Keywords: iTEAMS; ICT; agricultural practices; rural development.

1. INTRODUCTION

In India, the overall trend in the contribution of agriculture to the national GDP has seen a decline, with the contribution coming down from 52.3% (1950-51) to 18.5% (2008-09). However, unbeknownst to many, the contribution has increased from 17.6% (2018-19) to 20.2% (2020-21) and one of the contributors to this success is ICT (Information and Communication Technology). Agriculture has and remains to be the backbone of the country's economy and hence there had been a number of initiatives to aid the growth of agriculture in India. ICT in agriculture is one segment which has seen widespread growth. Over the past decade, the number of public and private sector initiatives in ICT for agriculture has increased substantially [1]. ICT in agriculture is an emerging field focusing on the enhancement of agriculture and rural development [2]. The components of ICT in agriculture may include mobile applications, websites, telephony services, radio, kiosks, television, etc., making the domain vast. In recent years, the government and various other organisations have undertaken several initiatives such as eNam, Kisan Call Centre, mKisan, Kisan TV, Agmarknet, Digital Green, ITC's e-choupal, etc. to escalate the ICT trend in agriculture. ICT contributes to the development of rural areas through a variety of its services, with the main focus on agriculture. It not only assists farmers in becoming information-rich by providing them with knowledge on any topic at any time, but it also assists them with their farm activities. It is also essential to concentrate on building ICT tools that are based on local elements and designed with the requirements of local people in mind. 1917iTEAMS is such an initiative taken by the government of Meghalaya in collaboration with the Meghalaya Small Farmers Agri Business Consortium (MgSFAC), Department of IT, Meghalaya Institute of Entrepreneurship (MIE), Central Agriculture University (CAU), and Digital India Corporation worked with the Department of Agriculture to create the initiative (DIC). The 1917iTEAMS initiative is regarded as India's first-

ever innovative farmer-centric, market-oriented, cloud-based facilitation tool that links farmers to markets through real-time agro-advisories, reasonably priced logistics, and market intelligence (Kumar, 2019).

With 80% of the state's population depending on agriculture for their livelihood directly, agriculture is important to the economy of the state of Meghalaya as well. However, agriculture in Meghalaya is characterised by the use of traditional practices, low productivity and poor yield. Much of the produce of the state is consumed in the state itself and there is a negligible amount of export from the state. There is a need to increase spending on agriculture by the government in the state [3]. There is a scope for improving the agricultural practices of the farmers in Meghalaya by widening the role of Information and Communication Technologies in agriculture [4]. There are but a very few ICT initiatives that cater to the specific needs of the farmers in northeast India. iTEAMS is said to be the first of its kind of initiative taken in the north-eastern region of India. 1917iTEAMS (Integrated Technology Enabled Agri Management System) started in December 2017 is a mobile telephony service based on ICT that requires a farmer to register by calling the toll-free number 1917. After enrolling, farmers can avail of the services provided by iTEAMS which include logistic solutions, agro-advisories and market connect [5,6].

The centre functions from 7 AM to 7 PM. Farmers can contact the Agri-Response Centre (ARC) for assistance by dialling the number 1917. If a farmer needs a logistics solution, they are connected to the DO (Dispatch Officer), who will assist them in the transportation of their goods through ARVs (Agri-Response Vehicles); otherwise, if the farmers have questions, they are connected to the Level 1 ICO (Incoming Communication Officers), who can help them with disease and pest management, the package of practices on apiculture, fisheries, Sericulture, scheme-related information, livestock

health management, and providing buyer information and any other allied sectors information. If the ICOs are unable to resolve a problem, the issue is referred to Level 2 Subject Matter Experts, who are Agriculture Department officials.

iTEAMS has been up and running for four years now, gaining its immense recognition during the Covid-19 lockdown for helping the farmers to sell their produce. There are approximately 85,000 farmers registered with iTEAMS so far. Therefore, it is imperative to gather feedback from the enrolled farmers and enhance its operation. Furthermore, there are no prior studies that address the issue. As a result, the same goal underlies our investigation.

2. MATERIALS AND METHODS

The study was conducted in the state of Meghalaya, in the North-eastern part of India, the home to iTEAMS. Further, the Ri bhoi district was selected purposively since it currently has the most farmers registered with iTEAMS; according to the data availed from the centre, the district has 14,064 registered farmers as of June 2022, out of 84,246 total registered farmers in the state. Further, it can be added that the district has better coverage of ICT initiatives [7]. The district has four blocks namely Umsning, Jirang, Umling, and Bhoirymbong. Of the four blocks, Bhoirymbong was selected purposively due to its significant number of iTEAMS registered farmers. Six villages were chosen at random from the block: Mawlasnai, Umktieh, Lumdaitkhla, Itsohpa-ir, Madanriting, and Mynri umsning. For a total sample size of 120, a total of 20 farmers from each village were chosen at random. Data were collected directly using a well-structured interview schedule. Data collected was tabulated and analysed using frequency, percentage, mean and standard deviation using SPSS (22.0).

3. RESULTS AND DISCUSSION

3.1 Perceived Gratification for Services Provided by iTEAMS

iTEAMS provide various services to its registered farmers. Table 1 presents the level of gratification towards these services by the farmers. Perceived gratification among the farmers was found using a two-point continuum scale with "1" signifying "Satisfied" and 0 signifying "Not satisfied"

It is evident that a majority of the farmers (71.7%) were satisfied with the services being well in time, followed by 69.2% of the farmers acknowledging the help by iTEAMS in the sale of their produce during the covid-19 lockdown. In fact, it was during the lockdown that iTEAMS rose to prominence as it assisted farmers in providing access to markets. The Government of Meghalaya took a Cabinet decision on the evening of March 26, 2020, in the midst of the COVID-19-related national lockdown, directing the 1917 iTEAMS of the Department of Agriculture and Farmers' Welfare to purchase vegetables for distribution to retail outlets in Shillong and other urban areas (GFRAS, 2020). A considerable number of farmers (63.3%) were satisfied with the price charged for the ARVs (Agri-Response Vehicles). iTEAMS charge a minimum amount of Rs. 0.02 per Kg/Km, which is quite considerate compared to what other merchants charge. More than half (58.3%) of the farmers were satisfied with the capacity of the Agri-Response Vehicles. ARVs is said to have a capacity of 2 metric tonnes. The accessibility of the personnel at any time was appreciated by 47.5% of the farmers. iTEAMS has staff available from 7 a.m. to 7 p.m., and they are also equipped with IVRS around the clock. 28.3% of the respondents felt that the information received from iTEAMS was helpful to them. iTEAMS provides their registered farmers with information regarding all the package of practices, market information, schemes-related information, etc. However, only 18.3% of the respondents felt that information provided by iTEAMS was relevant and consistent with their agro-ecological conditions. Furthermore, just 10% of farmers were satisfied with the information provided by iTEAMS regarding various schemes. Despite the fact that the government uses a lot of advertising and news releases about a new scheme, unless they are informed, the majority of farmers are unaware of them. Only 9.2% of the farmers were satisfied with the market information provided by the centre. Followed by 5.8% of the farmers being satisfied with the information on livestock management.

3.2 Difficulties Faced by the Users

From Table 2, it is apparent that the lack of information on how iTEAMS works was clearly a big issue for the majority (73.3%) of the farmers. A major number of farmers associated iTEAMS with their ARVs (Agri-Response Vehicles) i.e. they only knew about their transportation services; the farmers were unaware of the other

two aspects of iTEAMS, namely, agro-advisories and market linkage. There is a need to raise awareness about iTEAMS' underutilised services, which could be highly beneficial to the farmers. Agro-Advisory Services (AAS) were formed to be helpful to the farmers in managing climate risks and miscellaneous agricultural practices effectively for sustainable and profitable agricultural production [8]. More than half (68.3%) of the respondents had a lack of interest in availing of the services altogether. Similar results were found by Goyal et al. [9] in their study on perceived problems and suggestions on Kisan Call centre, where it was found that 45.33% of the 150 farmers had a similar lack of interest in availing of the services provided by KCC to them. There is a need to educate the farmers on the advantages of ICT in agriculture as it might be a new topic to them. Modern information and communication technology (ICT) allow new possibilities to overcome the information gap from which rural households and farmers suffer [10]. 39.2% of the respondents faced difficulty in getting in line with the centre, which can be attributed to the fact that there are only four ICOs (Information Communication

Officers) working in the centre currently, who are responsible for attending to the calls of the farmers. 32.5% of the farmers felt that the capacity of the ARVs (Agri-Response Vehicle) was less. Whereas, 28.3% of the farmers had a problem with the waiting period to avail of an ARV. The centre currently has 18 ARVs. 24.2% of the respondents had difficulty explaining their situation to the staff. Furthermore, it was noted that services had been denied to 18.3% of the respondents at a point in time. Whereas, 16.7% of the farmers reported that ARVs were not available when they required them. 9.2% of the farmers expressed dissatisfaction with workers not talking in their local dialect.

3.3 Suggestions Given by the Users

Table 3 lists the suggestions made by respondents for improving the centre's efficiency. It is apparent that the majority of respondents (90.8%) believe the number of ARVs should be increased; the centre currently has 18 ARVs which should now be increased as more farmers are linking to iTEAMS.

Table 1. Perceived gratification for services provided by iTEAMS

Statements	(n=120)		
	Frequency	Percentage	Rank order
iTEAMS personnel are accessible whenever the farmers seek their help	57	47.5	5
Information received by iTEAMS helps farmer's problem	34	28.3	6
Information provided by iTEAMS is relevant and consistent with Agro-ecological conditions	22	18.3	7
Information and logistics services provided by iTEAMS are well in time	86	71.7	1
iTEAMS gave information on market	11	9.2	9
iTEAMS has given information on livestock management	7	5.8	10
Information given on various schemes	12	10	8
Price charged for the vehicles	76	63.3	3
The capacity of the vehicles	70	58.3	4
Helped in the sale of produce during the lockdown	83	69.2	2

Table 2. Difficulties faced by the users:(n=120)

Statement	Frequency	Percentage	Rank
Difficulty in getting line	47	39.2	3
Unavailability of ARVs in time of need	20	16.7	8
Lack of awareness on the functioning of iTEAMS	88	73.3	1
Not talking in local dialect	11	9.2	10
Difficulty in explaining the situation.	29	24.2	6
Lack of interest among the farmers to avail the services.	82	68.3	2
Personnel are not well prepared to answer the farmer's questions.	17	14.2	9
Capacity of ARVs is less.	39	32.5	4
Waiting period is long to avail the ARVs	34	28.3	5
Services were denied	22	18.3	7

Table 3. Suggestions given by the respondents: (n=120)

Statements	Frequency	Percentage	Rank
Increasing the number of ARVs available with iTEAMS.	109	90.8	1
Increasing the capacity of ARV	93	77.5	2
Speaking in the local dialect.	16	13.3	4
Provide information on the latest technologies/ schemes.	70	58.3	3
Awareness campaign to popularize iTEAMS.	93	77.5	2

Farmers' perception of the digital way of connectivity & marketing through 1917iTEAMS has changed the scope of marketing [11]. Further, 77.5% of farmers believe ARV's capacity should be raised, and more awareness programmes on iTEAMS are needed. According to 58.3% of respondents, farmers want the centre to provide information on the latest technology and schemes. Finally, 13.3% of the farmers requested that the employees speak in the local dialect. There are three languages in Meghalaya namely Khasi, Garo and Jaintia; further, the languages have different dialects which vary slightly depending on the locations they are spoken in. The centre needs to ensure that the operators understand and speak the local dialects as the farmers will mostly be comfortable conversating in their own dialects.

4. CONCLUSION

From the study, it is evident that the respondents were mostly satisfied with iTEAMS for offering their services in time, followed by their help in the sale of produce during the covid-19 lockdown. It is also evident that the most difficulty the farmers faced was that they were unaware of the proper functioning of iTEAMS. As mentioned earlier, most of the farmers associated the term iTEAMS with their ARVs and were mostly unaware of the other two aspects of iTEAMS viz' agro-advisories and market connect; for the farmers to be able to take full advantage of the centre it is necessary for the centre to have awareness programmes across the state. It was also noted that the farmers were uninterested in availing of the services provided by the centre. Again, it is necessary to inform the farmers of the advantages of the use of ICT in agriculture. Furthermore, farmers suggested that the number of ARVs should be increased. The centre should solicit feedback from the farmers on a regular basis, in order to enhance their functioning. In 2019, the North East Development Foundation (NEDF) and Digital Empowerment Foundation (DEF) announced 1917iTEAMS as the winner of the 7th eNabling North East Development Award

in the "Agriculture & Rural Development" Category. The initiative is continuing its growth and is set to launch its own mobile application soon. iTEAMS is truly an innovation for change for the farmers of Meghalaya.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Aker JC, Ghosh I, Burrell J. The promise and pitfalls of ICT for agriculture initiatives. The journal of the international association of agricultural economists. 2016;47(1):35-48.
2. Mahant M, Shukla A, Dixit S, Patel D. Uses of ICT in Agriculture. International Journal of Advanced Computer Research. 2012;2(1):2277-7970.
3. Dkhar DS, De UK. Public expenditure on agriculture and economic growth:a case study of Meghalaya. Agricultural Economics Research Review. 2018;31(2):271-279. DOI:10.5958/0974-0279.2018.00044.7
4. Syiem R, Marak BR, Bandyopadhyay AK. Innovative extension practices in East Khasi Hills district of Meghalaya: A case study. Indian Journal of Agricultural Research. 2016;50(6):589-593.

5. Lavanya P. Formative Evaluation of Kissan Call Centers in Tamil Nadu. M.sc thesis. Tamil Nadu Agricultural University, Coimbatore; 2006.
6. Pamu SK, Manoharan A. 1917 Integrated Technology Enabled. In Proceedings of the 20th Annual International Conference on Digital Government Research (dg.o 2019). Association for Computing Machinery, New York, NY, USA. 2019;495–498.
DOI:<https://doi.org/10.1145/3325112.3329883>
7. Syiem R, Raj S. Access and Usage of ICTs for Agriculture and Rural Development by the tribal farmers in Meghalaya State of North-East India. Journal of Agricultural Informatics. 2015;6 (3):24-41.
8. Ramachandrappa B, Thimmegowda MN, Krishnamurthy R, Babu PN, Srinivasrao CH, et al. Usefulness and impact of agromet advisory services in eastern dry zone of Karnataka. Indian Journal of Dryland Agricultural Research and Development. 2018;33(1):32.
9. Goyal S, Jirli B, Manunayaka G. Perceived Problems and Suggestions of Farmers regarding Kisan Call Centre. Indian Journal of Extension Education. 2019;55(1): 34-36.
10. Swaminathan M, Swaminathan MS. ICT and agriculture. Journal on Computer Science and Information Technologies. 2018;6:227–229.
11. Datta K, Bhattacharya U. An Attempt towards Reviving the Indian Economy from Extreme Slowdown to Survival:Some Introspections. Indian Journal of Finance and Economics. 2020;1(2):71-87.

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