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सत्यमेव जयते

Where there is Rural Wellbeing there is Universal Prosperity

About the Journal

Indian Journal of Rural Education and Engagement (IJREE) is a blind peer reviewed half yearly Scholarly Journal published by Mahatma Gandhi National Council of Rural Education (MGNCRE), formerly National Council of Rural Institutes, Ministry of Education (formerly Ministry of Human Resource Development), Government of India. The journal intends to diffuse scholarly information on Academia Community Engagement, Rural Engagement and related areas such as Rural Education, University Community Engagement, Rural Tourism, Rural Management, Rural Entrepreneurship and Rural Communication. It publishes research and review papers, case studies and notes on Community Engagement and Education. The Journal is intended to benefit the academia, policy makers, government departments and all others interested in Rural Community Engagement.

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Contents

Volume No. 7 **September 2020**

Foreword

1. **Rural Marketing and Consumers - The Critical Role of Pachayati Raj Institutions in Redressal of Consumer Grievances**

Prof. Udaybhanu Bhattacharyya
Department of Rural Development Studies
University of Kalyani, West Bengal

2. **Digital Interventions and Technology Adoption among the Paddy Farmers in Tamil Nadu**

Prof. Mary Cherian & Prof. B Poongodi
KCT Business School, Coimbatore, Tamil Nadu

3. **Case Study: Villamart - The inspirational Story of a Rural Entrepreneur**

Prof. Sandeep Kumar Mohanty
Birla Global University, Bhubaneswar, Odisha

4. **Case Study: Community Participation – Phayeng Village, Manipur**

Tahir Manzar & Rahul
Xavier School of Rural Management
Xavier University, Bhubaneswar, Odisha

5. **Caselet: Watershed Activity and Origination of FPO**

Aditya Bagchi & Sarvesh Chaturvedi
Xavier Institute of Management
Xavier University, Bhubaneswar, Odisha

6. **Caselet: Revamping – from Water Logging Area to Water Conservation Area**

Prof. Zeenat Madan
Sanatan Dharma College. Ambala Cantt., Haryana

Foreword

Mahatma Gandhi National Council of Rural Education (MGNCRE), Department of Higher Education in the Ministry of Education (formerly Ministry of Human Resource Development), Government of lndia, brings out the Seventh issue of its Journal in the field of Rural Community Engagement and Rural Education. This is part of the Council's objectives to diffuse development research and scholarly information.

The blind peer reviewed Journal's scope has been identified broadly to cover the areas of Academia-Rural Community Engagement and Higher Education focusing on Rural Concerns. Areas covered include: Rural Education, University-Community Engagement, Rural Tourism, Rural Entrepreneurship, Rural Management and Rural Communication among other aspects of rural concerns. The Journal publishes research papers, review papers, case studies, including Notes on current issues of concern to the Rural Community Engagement and Rural Education sectors. Efforts have been made to identify potential authors and scholars who have been working in rural community engagement and rural education through the journal databases and the literature scan in the field. Request letters have been sent to the research institutes and universities in India and also to the individual scholars and academics to contribute their research manuscripts for publishing in the journal.

All the manuscripts received have been put for anti-plagiarism verification and those articles which have more than 25% of similarity have been sent back to the authors concerned to minimize and edit their papers. Further, those articles which were well within the limits of plagiarism have been sent to the identified Reviewers and Peer Reviewers to review and to offer their remarks on the papers about their worthiness and also to suggest any corrections needed in the paper before they are accepted for publishing. This is the Seventh issue of the Journal based on recommendations by peers. The journal includes research articles and cases/caselets on rural concerns by eminent academicians and management students. MGNCRE has made great strides in Rural Management through curricular and academic interventions. Several collaborative MoUs have been signed for exploring, extending and strengthening mutual relationship for promotion of professional education in Rural Management by sharing the facilities and expertise.

The Journal takes pride in having eminent scholars, researchers and administrators on its Editorial Board. The Journal is intended primarily for the academia, policy makers, departments in the government and for all others interested in Rural Community Engagement, Rural Education and Rural Management. Majority of India still lives in villages and so the topic of rural education in India is of utmost importance. Further, we firmly believe that the Journal will meet the objective of disseminating the current developments in rural community education and engagement.

Dr. W G Prasanna Kumar
Chairman MGNCRE

Rural Marketing and Consumers

The Critical Role of Pachayati Raj Institutions in Redressal of Consumer Grievances

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Abstract

Rural marketing has now been treated differently by a new approach with skills, tools and strategies which are distinct from the mindset of urban marketing. Today, India's rural markets are considered one of the highly growing markets because, since 2000, per-capita Gross Domestic Product (GDP) has grown faster in India's rural areas at 6.2 percent Compound Annual Growth Rate as compared with its urban counterparts (which is 4.7 percent). Studies have pointed out that as the rural consumers in India are generally ignorant and mostly unorganised, they are being exploited by the manufacturers, traders and the service providers; they have poor knowledge about their rights as consumer and also lack of skills to take a rational decision based on information about the products and services. The rural consumers in our country face problems like adulteration, short weighing and measuring, lack of safety and quality control in appliances and equipments (electrical and mechanical), unfair warranties and guarantees, imitation, sale gimmicks and unreasonable pricing. Considering the gravity of the issue, the Government of India has taken a number of legal measures to protect the consumers by enlarging the scope of consumer protection. Of the various legal remedies, the Consumer Protection Act is the principal legal remedy available to the consumers which seeks to provide better protection of the interests of the consumers.

In the emerging scenario, it is necessary to protect the rural consumers by educating them about their rights and empowering them to make decisions based on information relating to the goods and services. The Panchayati Raj Institutions (PRIs) can play a very crucial role in consumer protection and consumer welfare by sensitising consumers and establishing a separate Upa-samiti responsible for looking after consumer grievances for better management of consumer protection and redressal mechanism in our country.

Keywords: *Safeguarding of Consumer, Consumer Disputes Redressal, Consumer Goods, Consumer Awareness*

Introduction

It has long been a debate among marketers, both academicians and practitioners, how far the rural marketing has to be considered separately than its urban counterpart. Those who favour for considering rural marketing as a separate discipline, have opined that rural marketing is to be treated in a different way by a new approach, skills, tools and strategies in view of successful marketing in rural India (*Dogra et. al*. 2012,p1) and it must be distinct from the mindset of urban marketing (*ibid*). National Sample Survey Organization (NSSO) defines rural markets as those areas[1] with fewer than 5,000 residents, a population density less than 400 people per square kilometre and at least 75 percent of the male working population employed as agriculturists (*Jha,* 2013, p172). In the post liberalisation era, India has witnessed a drastic change in the pattern of markets, both consumables and durables and a considerable portion of such changes has direct impact on rural market. As a result, needless to mention, the rural market has now been emerging as a place for massive business opportunities.

Rural incomes have been growing at more than 7 percent over the past few years, helping to account for almost 40 percent of India's total consumption of goods and services. Non-food expenditures are growing at an 8.2 percent annual compound rate. (*Accenture Survey, 2010*). Between 2009 and 2012, rural consumption per person grew at 19 percent per annum, two percentage points higher than its urban counterpart. As incomes rise, rural consumption shifts

from necessities to discretionary goods and lifestyle products, including mobile phones, television sets and two-wheelers (*Accenture Survey*, 2013). During this period, spending in rural India reached US$69 billion, significantly higher than the US$55 billion spent by urban consumers. The percentage increase in monthly per capita expenditure in rural markets surpassed its urban counterparts during 2009 and 2012, indicating increased consumption in rural markets (*Accenture Survey,* 2013).

Rural marketing in Indian economy can be classified under two broad categories namely the market for consumer goods that comprise of both durable and non-durable goods and the market for agricultural inputs that include fertilizers, pesticides, and seeds (*Tripath*i, 2012, p 42). The rural consumers are mostly attracted by the advertisements as either aired in electronic media, namely, television and radio or published in print media. Recent studies identify that the common problems faced by rural consumers are related to adulteration, short weighing and measuring, lack of safety and quality in appliances and equipment, unfair warranties and guarantees and unreasonable pricing (*Dogra and Ghuman,* 2012; *Gopalaswamy,* 1997; *Jha,* 1988; *Kashyap* and *Raut,* 2006; *Kotler et al*., 2007; *Krishnamacharyulu* and *Ramakrishnan,* 2002; *Rajagopal,* 1998*; Velayudhan,* 2002).

It has been a common practice of rural consumers to procure products from markets either motivated by advertisements found in different media or having been influenced by sharing the experiences of neighbours and other local people who had used the products. The traditional view of a "rural" consumer segment has been changing rapidly. Today's rural consumers are more diverse with specialised needs and preferences. The social status of the rural people is vulnerable as the income level and literacy is extremely low. Moreover, there is a persistence of a wide range of traditional values and superstitious beliefs that have always been a major impediment in the progression of this sector. Above all the villagers do not know the process and mechanism to address their grievances to the appropriate forums understanding that they are being cheated by the producers/sellers of products and services with respect to quality, quantity, after sales service and others as claimed to be provided with at the point of sale. The rural consumers at large are very commonly unaware of the existence of several consumer disputes redress agencies, namely, National Consumer Disputes Redressal Commission (NCDRC), State Consumer Disputes Redressal Commission (SCDRC), and District Consumer Disputes Redressal Forum (DCDRF). Importantly, Section 21 and Section 23 of Consumer Protection Act, 1986[2] also exclusively deal with the safeguarding of consumers in a juridical method.

The present paper deals with the basic issues of rural marketing in general and tries to focus on the difficulties in redressing the problems of rural consumers, specifically, West Bengal in particular. Attempts have also been made to find out how the grievances of rural consumers can be duly addressed to the appropriate forum, district or state level, considering the changing role of Panchayati Raj Institutions in our country.

The article is divided into five different sections. Introductory section is discussing the overview of rural marketing and characteristics of the rural consumers belong to vulnerable section of society. Section two concentrates on the literature review relevant to the present topic. While Section three explains detailed methodology of the present study, section four concentrates on results and detailed discussions relating to the primary survey based on selected two blocks of Nadia district, West Bengal. Finally, by identifying areas where immediate intervention is necessary to protect the rural consumers from the clutches of unscrupulous and fraudulent traders and to mitigate their grievances in a more practical manner, suggestions have been offered for improvement of the redressal system of aggrieved rural consumers.

Objectives of the Study

The primary objective of the study is to inquire into the possibility of the emerging role of the *Panchayati Raj* Institutions (PRIs), particularly *Gram Panchayats,* to take an active part in protecting the rural consumers from the unscrupulous sellers or service providers and also identify areas wherein these PRIs can extend their role as local government by providing the consumer awareness and sensitization programme meant for the people at large.

However, to achieve the primary objective of the

study, following are the secondary objectives to be inquired into:

1) To investigate the basic socio-economic structure of the respondents.
2) To explore the extent of the concepts of the consumer awareness and consumer protection among the local people of the two blocks.
3) To make a block-wise comparative study of the responses and issues related to consumer protection and consumer awareness.
4) To identify the role of the panchayats in popularising the concepts of consumer awareness among the people.
5) To investigate the structure of the PRIs that is needed to be set up considering the need of consumer complaints register and redressal of the grievances.

Literature Review

As stated earlier, globalisation, liberalisation and privatisation have transformed the Indian economy into a vibrant and rapidly growing consumer market. As a result, the rural markets, which were earlier ignored by most of the big international market players, are now being considered as a great domain of business opportunity. Since the disposable income of the rural people is growing in a rapid pace, corporate houses are entering into the rural markets with goods and products. Such an emerging trend makes the marketing for rural consumers more complex (*Mishra and Chadah,* 2009).

Three distinct phases of evolution of rural marketing have been identified by *Kasyap and Raut* (2006) during which the term rural marketing has changed its meaning and connotation. While the first phase (pre-1960s) of rural marketing has only dealt with agriculture marketing, in the second phase (1960s to 1990) the marketing of agricultural inputs and non-farm rural produces have been considered as rural marketing. In the post-liberalization period, with rising incomes and a burgeoning middle class across the country, rural marketing predominantly refers to the marketing of fast moving consumer goods (FMCG) and consumer durables in rural areas.

Jha (1988) has proposed a domain of rural marketing that has found wider acceptance in the current literature. He visualizes the domain of rural marketing as the two-way marketing process concerned with the flow of goods and services from urban to rural, rural to urban and rural to rural areas.

The literature from the pre-liberalization and the post liberalization periods reveal completely different focuses and understandings of rural marketing (*Dogra and Ghuman,* 2012; *Gopalaswamy,* 1997; *Jha,* 1988; *Kashyap* and *Raut,* 2006; Kotler et al., 2007; *Krishnamacharyulu* and *Ramakrishnan,* 2002; *Rajagopal,* 1998*; Velayudhan,* 2002).

Comparing the Indian and Western consumerism, *Saxena* (1978) has observed that in India the consumers are mostly facing the problems like soaring prices, poor and sub-standard service products, gross adulteration, arbitrary weight and measures, deceptive advertisement and publicity campaign. As a result, the Indian consumers need to be sensitised and to be educated about their rights as has been followed in the USA (*Khamesra* 1980). At the same time, it has been pointed out that the effective enforcement of legislation and a sustained right to educate the people are the must conditions for effective consumer protection in India. *(ibid*)

Similar types of observations have also been made by *Sahu* (1981). He has pointed out that the Indian consumers are deceived of due to illiteracy, ignorance and lack of awareness about the consumer rights. The consumers have often faced problems like overcharge, underweight, adulteration, imitation, defective packing and bad services by fraudulent, deceptive, unethical and unscrupulous businessmen.

A study has been conducted on the roles of local bodies in consumer protection by George and *Cheriyan* (2012) and it reveals the difficulties of the rural consumers in redressal mechanism at village level and has suggested some measures that are to be undertaken by the Panchayats to facilitate the rural consumers.

The concepts, definition and the applicability of Consumer Protection Act 1986[2] has been discussed by *Singh* (1994) pointing out the applicability of the Act to various services like airlines, banking, housing, insurance, posts and telegraphs and telecommunications. Singh (1994) also dealt with the

issues relating to the Consumer Disputes Redressal Commissions and Forums to redress rural consumers' various problems and also how to get rid of those problems.

Another noteworthy study has been conducted regarding the consumer awareness in *Hisar* district of Haryana by *Singh* (1992) and it has identified that the general awareness of consumers on consumer protection legislation has been lacking among both the rural and urban population. The study has revealed that almost all the people in rural areas and nearly 90 per cent of urban population had never heard any consumer protection legislation.

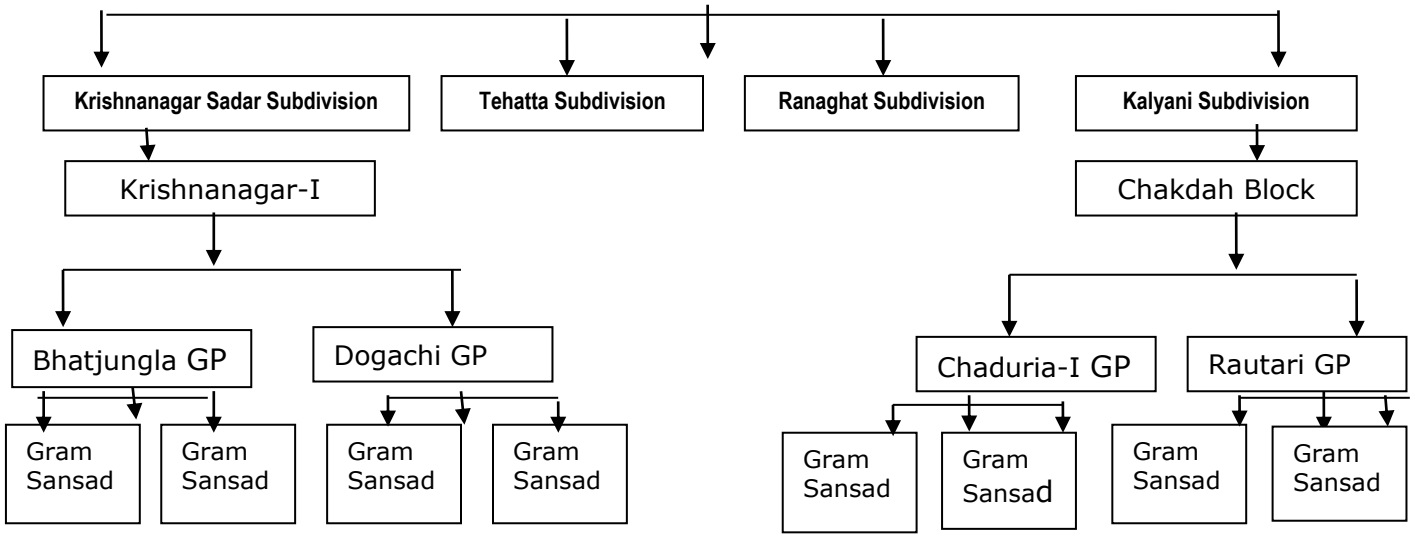
Since the eighties of last century, a considerable number of articles and studies have been published on the issues of consumer rights, consumer protection and redressals [*Bhatnagar,* (1991); *Thakur,* (1992); *Barowalia,* (1986)] and formation of strong and effective consumer redressal has been advocated to protect the consumers, both rural and urban.
However, the available studies have neither been shed light on the role of Panchayati Raj in India for protection of rural consumer nor analysed any case study for the redressal of consumer grievances in view of the growing rural market in India though, needless to mention, the problems as referred in earlier researches are still very much prevailing in our country, both rural and urban.

The present study is a humble attempt to bridge the research gap.

Research Methodology

The present study is based on the survey of selected Gram Sansads[3] of Nadia district in West Bengal and these sansads have been chosen from four Gram Panchayats of selected two blocks. Nadia district has four subdivisions namely *Krishnanagar Sadar*, *Ranaghat, Kalyani* and *Tehatta*. So far the rural part of the district is concerned, it has 17 blocks having the same number of Panchayat Samitis and 187 Gram Panchayats. Primarily, two subdivisions have been selected namely, *Krishnanagar Sadar* and *Kalyani* Subdivision for the study. The former is nearer to the district headquarter and the latter is the farthest from the district headquarter. There are 7 blocks in Krishnanagar Sadar and two blocks in Kalyani subdivision. From both of the subdivisions we have selected one block each on random basis and thus the selected blocks are Krishnanagar-I (under Krishnanagar Sadar subdivision) and Chakdah (under Kalyani subdivision). Again two GPs from the blocks, so chosen, have been selected on random basis. Under each of the two GPs, two *gram sansads*, have been selected randomly. Finally 10 persons from each gram sansad have been interviewed based on a structured questionnaire. Thus sample size of the present survey is 80. The three stage sampling can be shown in Figure 1.

Figure: 1
Three Stage Sampling
Nadia District



Data Source

The sources of data used in the study can be grouped into two, namely, primary and secondary. Primary data sources comprise of administering a structured questionnaire among rural consumers so selected. Besides, opinionnaire from Gram Panchayat members, Panchayat Pradhan and officials, outcome of the interview of the villagers/stakeholders also comprise of primary sources of data.

The questionnaire contains four different parts. While section-I contains general information of the respondents, section-II deals with the mode and pattern of the purchases made by the rural consumers either from local market or elsewhere. In section- III, emphasis has been given on understanding whether the rural consumers are aware of the quality, quantity and other general information of products. Finally, in the last section of the questionnaire, queries have been made to judge the efficacy of the consumers' redressal forum in mitigating grievances of consumers at large.

Again opinionaire has been administered among the officials of the Gram Panchayat, both elected (namely *Pradhan* and *Upa Pradhan*) and key employees namely, Executive Assistant and Secretary of Gram Panchayat. The structured opinionaire includes seven questions relating to the present status of consumer redressal and opinion has been sought for, among others, how the present position can be improved for the betterment of the redressal forum in general and the rural consumers in particular.

The secondary sources of data consist of prevailing Acts, rules and laws that have been prevailing in the state of West Bengal and the country for the protection of rural consumers; scholarly articles published in different journals and books; various study reports published by both government and non-government organizations and institutes, and different websites including the website of Department of Consumer Affairs regularly maintained and updated by Government of India.

Result and Discussion

As stated in methodology, total number of 80 villagers lived in four different GPs of the study area is the sample population and all have been interviewed based on a structured questionnaire. Out of the total respondents male and female ratio is 55:45. In Table 1 – 4, the socio-economic profiles of the respondents are shown.

Table: 1
Age Distribution of the Respondents

Age	Percentage
18-25 years	7%
25-30 years	11%
20-35 years	9%
35-50 years	36%
50-60 years	13%
Above 60 years	24%

Source : Field Survey

Table: 2
Literacy Level of Respondents

Literacy Level	Percentage
Illiterate	22%
Primary	9%
Upper primary	27%
Secondary	9%
Higher secondary	11%
Graduate	19%
Others	3%

Source : Field Survey

Table: 3
Household Income Distribution

Income Distribution	Percentage
Upto Rs.50000	29%
Between Rs. 50001 and Rs.100000	32%
Between Rs.100001 and Rs.150000	21%
Between Rs. 150001 and Rs200000	10%
Above Rs.200000	8%

Source : Field Survey

Table: 4
Occupation of the Respondents

Occupation/ Status	Percentage
Business and Service	30%
Housewife	36%
Labourer	8%
Retired and others	18%
Unemployed	8%

Source : Field Survey

Practice of Taking Cash Memo/Bill

In analysing the section 2 of the questionnaire which deals with the mode of pattern of purchase, it has been found that almost 98% of the total respondents do not have practice in claiming any invoice bill from the seller. Interestingly, the rest of the 2 percent consumers purchase their products either from vendor or directly from dealer (Table 5).

Table: 5
Claim for Receipts while Purchasing

Response	
Yes	2%
No	98%

Source : Field Survey

It has long been a practice by the Indian shopkeepers, especially in the rural areas, not to issue a proper bill to the customers against any type of purchase. Even they often insist the consumers not to demand any type of warranty card duly stamped and signed against the purchase of consumer durable goods. The common version of sellers in this regard is "*had there been any problem found later, I will take care of and make arrangements of necessary repair or replacement*". The respondents also have faced similar experiences while demanding warranty card or bill/cash memo on purchase of such goods.

Information about Products

It has been found that the consumers gather information about a product primarily from the electronic media, print media, and having interaction with local shopkeepers. Today newly emerging electronic media play a vital role to promote the consumer goods. However only 2% of the total respondents, living in remote rural areas, have no access to the facility of modern gadgets and are not aware of the various FMCGs or the new products launched in the market.

Apart from the electronic and print media, shopkeepers' views regarding a particular item have also been influencing significantly the rural consumers' modality in purchasing a product. Table-6 depicts that while 34 percent of the rural consumers gather information of a product from the electronic media for their regular purchases, 9 percent of the consumers are being influenced by the local shopkeepers. Again, 24 percent of consumers' decision gets affected by the three important sources of information, namely, shopkeepers' views, advertisement aired in Television and newspaper altogether. Most of the respondents in *Rautari* Gram Panchayat are illiterate and belong to BPL and ST category. Illiteracy and low income may be the reasons for their reliance on local shopkeepers for purchasing commodity of day-to-day needs.

Table: 6
Consumers Generating Information about Products

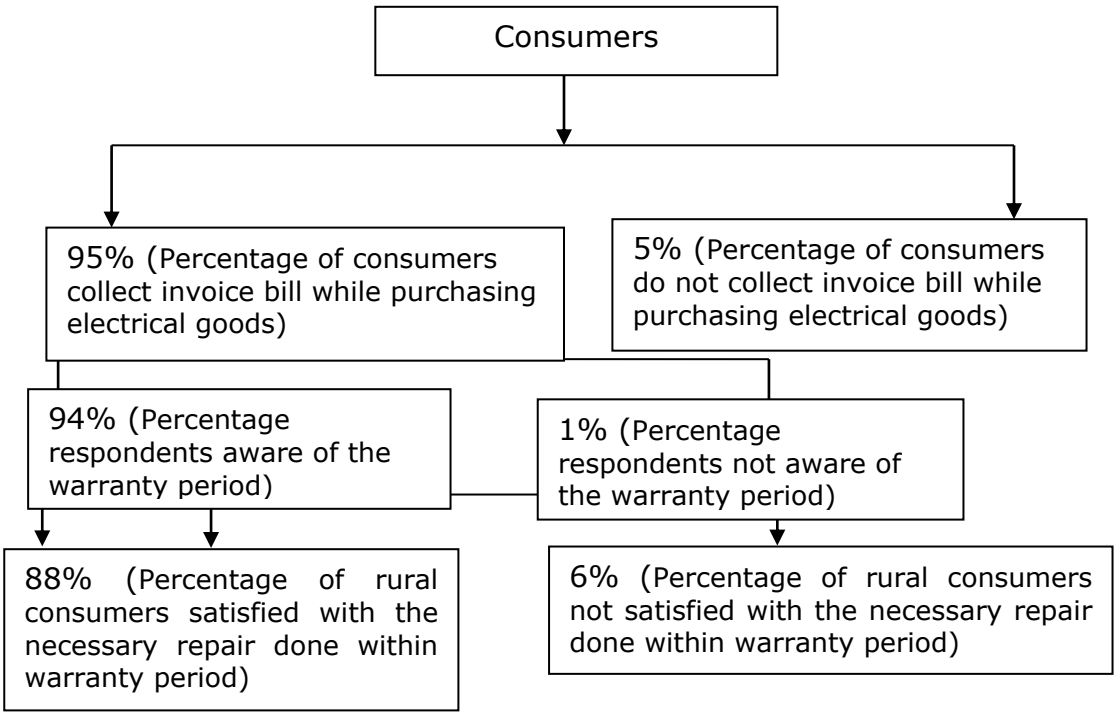
Sources of Information	Percentage of Respondents
Electronic Media, Print Media, Shopkeeper	24%
Electronic Media, Print Media	9%
Electronic Media, Shopkeeper	9%
Electronic Media	34%
Shopkeeper	24%

Source: Field Survey

Claim of Bill on Purchase of Electrical Goods

The companies selling the electrical goods through dealers ask their customers to keep in their custody the money receipt and warranty card duly signed in and stamped by the concerned dealer for future references. Table-7 depicts that 95% of the consumers take receipts while purchasing electrical goods. Among these consumers (95%), 94 percent respondents are aware of the warranty period but rest 6 percent consumers never complain to the local shopkeepers in case of defective item or malfunctioning of electrical goods. Among the above-mentioned 94 percent of rural consumers who are aware of the warranty period, 88 percent are satisfied with the necessary repair done within the warranty period. The position has been depicted in Figure 2.

Figure: 2



***Source**: Field Survey and compiled by the author*

Selling Spurious Goods

Various disputes occur in the name of the products as well as the manufacturing companies. It has been found that a section of shopkeepers, doing business in the present study area, deal with spurious goods such as GAMEs instead of GEMs (candy sweet/chocolate), TALKA SALT in the name of TATA SALT etc. Unscrupulous manufacturers follow the practice of just twisting one or two alphabets found in original product by keeping intact of their typing font as well as the design of packaging.

Table-9 shows that 70% of the respondents, when purchase a product, see the name of manufacturing company while 30% are ignorant of the matter concerned. Interestingly, only a few are concerned with expiry date and MRP of a product. Illiteracy and lack of sensitisation is responsible for such type of indifferent attitude found among rural consumers.

Table: 9
Consumers' Concern with Product Details

Concern with	Response	
	Yes	No
Noticing name of manufacturer	70%	30%
MRP and date of expiry	8%	92%

Source: Field Survey

Unscrupulous Activities by the Traders

In most of the cases, due to higher prices, the rural consumers prefer to unpacked products as it is sold as per their requirement, both in terms of quantity and pocket friendly prices. In such cases, rural consumers are mostly compelled to take adulterated products at a high price. Again, shopkeepers do not have any scientific measurement devices and hardly face any inspection of weight and measurement by responsible government officials. It is, therefore, not uncommon that rural consumers are often cheated by getting lower weight at a higher cost. This is shown in Table 10.

Table: 10
Awareness of Measurements

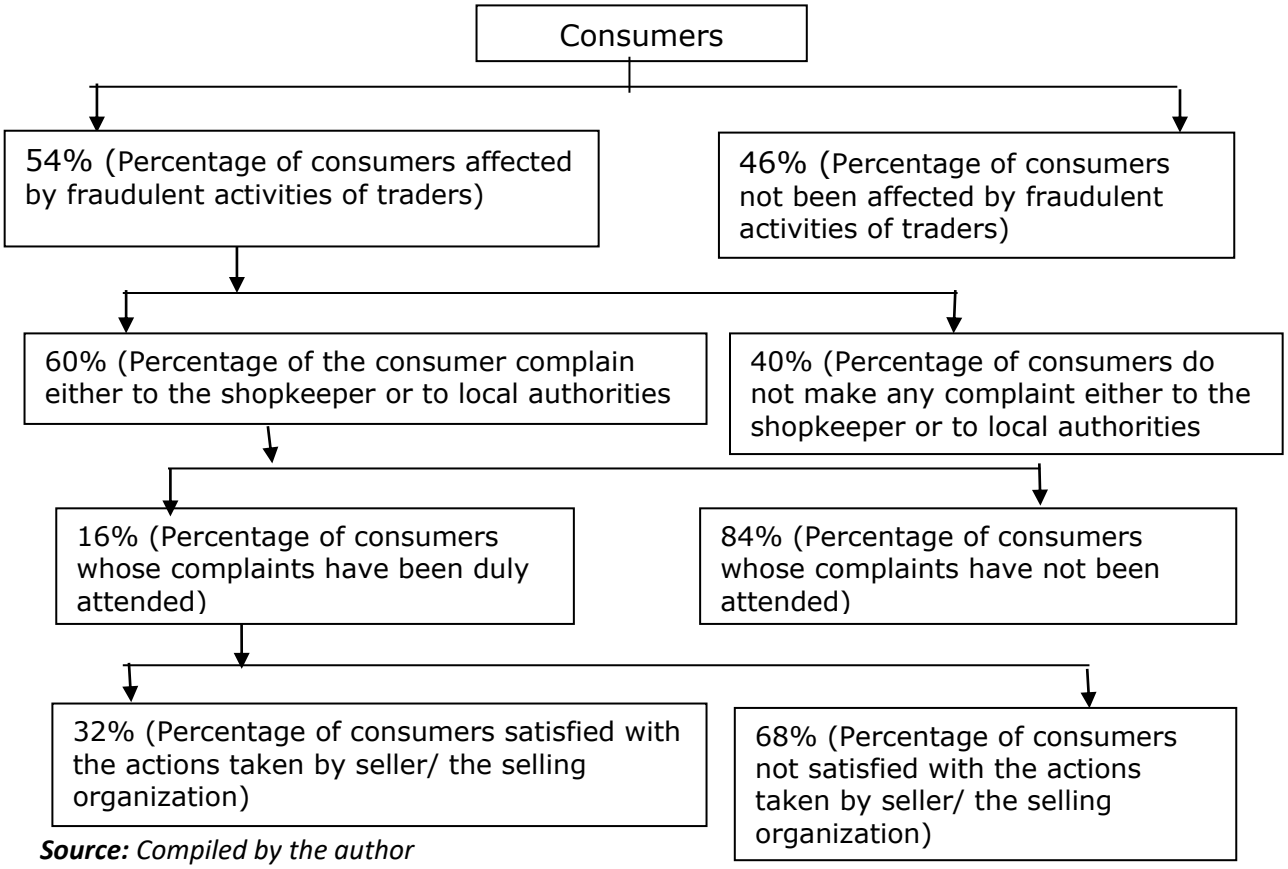
	Responses	
Whether consumers verify the weights during purchase	Yes (in percentage)	No (in percentage)
	56	44

Source: Field Survey

Actions Taken by Traders

The study shows that as many as 54 percent of the total respondents have either been faced the experience of purchasing low quality of goods by paying higher prices or supplied fraudulent products. Out of this, 60 percent of respondents do not make any complaint either to the shopkeeper or to the local authorities. Those who have lodged complaint to the shopkeepers and claimed compensation, only 16 percent of such consumers are duly honoured to their complaints. However, only 32 percent respondents out of this 16 percent are satisfied with the actions taken by the seller. This is shown in Figure 3.

Figure: 3



Source: *Compiled by the author*

Panchayats' Role in Consumer Awareness

According to the respondents, Panchayats do not extend any role either in consumer protection or providing consumer awareness and consumer sensitisation. 93% of the respondents do not know anything about the awareness programmes or the campaigns conducted by the concerned Panchayat regarding consumer protection and consumer awareness. The rest 7 percent consumers, however, are quite aware of the activities of the panchayat regarding protection of rural consumers.

Analysis of Opinionnaire

The present study also considers the opinion of key personnel of Gram Panchayat and the versions of key officials working with the Panchayat. It considers the views of those persons giving stress on how the Gram Panchayat, as a government institution, can interact and take active role in favour of the consumer protection under its jurisdiction. The outcome of the opinionnaire may be summed up as follows:

1) Gram Panchayats organize campaigns, depict in walls of important establishments and conduct fourth-Saturday meeting in every month on the various issues of consumer protection and consumer awareness generation among the local people.
2) As the consumers have raised their grievances verbally and no written complaint has generally put on by the deceived consumers, seldom any action has been initiated by the Panchayat. However, they have been advised to move to the district consumer forum or council against serious grievances.
3) Some of the panchayats follow the practice of raising issues of consumer grievances by organizing *lok-adalats*, initiating discussion in general body meeting of Durga Puja Committee and distribution of the leaflets among villagers for generation of consumer awareness.
4) Since the women are mostly deprived of and affected by the fraudulent activities as stated, the consumer related Upa-Samity[4] need to be covered in activities under the purview of the Nari-*O-Sishu Kalyan Upasamiti*. Creation of a separate *Upa-Samiti* may also be considered.

Suggestions and Conclusion

It has been a common feature that majority of the consumers across the country, both rural and urban, are scattered and a sizeable portion of these consumers are not aware of the existence of the forum where their grievances can properly be addressed to. The position of the rural consumers in our country is worse as most of them are either illiterate or poorly educated. These consumers, once cheated, have no other option to go to a better organised market but to buy goods from local market because of various constraints like distance, money and time. Gram Panchayat, the local government at grass root level, can play a very crucial role in protecting the consumers. A separate *Upa-samiti*, exclusively liable for looking after the issues of consumer protection and consumer grievances, can be established with the permission of the State Government, as stipulated in Section 32A (2) of the West Bengal Panchayat Act, 1973 (as amended). Had such a *Upa –samiti* been operative, the Panchayat will have to take active part in registering the grievances received from deceived consumers and forward the same to the District/ State Consumer Court for necessary action. Once such an initiative has been taken, the rural consumers, it is expected, may get relieved from the clutches of those producers and sellers who have been cheating them easily for years. The other specific suggestions for overall improvement of the consumer awareness and redressals may be pointed out as below:

1. Awareness programmes through camps, seminars, group discussions, workshops, mobile display vans, street dramas, magic shows, talking-doll shows and regular awareness programmes with SHGs, clubs and associations should be organized at village level.
2. In those programmes special attention is to be drawn to the rural people at large showing the original product and its packaging *vis-a-vis* some duplicate products having similar type of name and packaging.
3. The *Panchyats* should organize training programmes on consumer education for departmental staff and members of NGOs and VCOs.
4. Special consumer awareness programmes during important festivals *viz*. *Durga Puja, Kali Puja, Jagadhatri Puja, Saraswati Puja* and *Eid* should be organized and participation of consumers in these special awareness programmes should be ensured by the Gram Panchayats.
5. Basic information regarding Consumer Protection Act should be displayed at rural market place, rural post offices, banks and other important areas wherefrom the rural consumers

can be aware of their rights. *Panchayats* at grass root level should have to take necessary initiatives in this regard.

6. Toll free consumer helpline number must be displayed at every Gram Panchayat office.
7. 15th March, the World Consumer Rights Day, should be observed in every *Gram Panchayat*. New oaths and initiatives should be taken in this day regarding consumer awareness. School and college students are also to be invited in this day for institutional drive of consumer awareness for the public at large. The *Zilla Parishad* may act here as nodal agency.

End Notes

1. Census of India, since 1981, has defined the rural area as places satisfying criteria like (i) a minimum population of 5,000; (ii) at least 75 per cent of the male main workers engaged in non-agricultural pursuits; and (iii) a density of population of at least 400 per sq. km.

2. The 1986 Act was replaced by the Consumer Protection Act, 2019 and has been come into effect on 20 July 2020 across India. (http://egazette.nic.in/WriteReadData/2019/210422.pdf).

3. Body comprising of all the voters of a gram panchayat constituency.

4. Section 32A of the West Bengal Panchayat Act, 1973(as amended) prescribes for creating five *Upa-Samities* to look after developmental programmes of Gram Panchayat.

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Digital Interventions and Technology Adoption among the Paddy Farmers in Tamil Nadu

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Abstract

With the diffusion of technology in every field, use of ICT tools has a great scope in marketing of agricultural inputs and produces too. Paddy farmers in South India, especially in Tamil Nadu are the major consumers of seeds, major and minor fertilizers, pesticides, etc where a number of government, quasi government and private companies operate. This paper attempts to examine the diffusion and adoption of selected ICT tools viz., Voice Messaging Services, Cable TV among the paddy growers in Tamil Nadu. Paddy is the principal crop extensively cultivated in the of state of Tamil Nadu. With the rising demand in the global market, the adoption and diffusion of Information and Communication Technology, System of Rice Intensification , Integrated Pest Management practices have major role in increasing the productivity besides meticulous planning and proper use of technology. The study area comprises of the three major rice producing districts from the three selected National Agriculture Research Project agro-climatic zones. Though a vast research on ICT in Agriculture has been done in the past decade, there is limited research done on the penetration of mobile phone usage and mobile phone based services in agriculture. Crop specific study viz. Paddy of ICT applications, particularly voice SMS in agriculture has also been less covered. To address this research gap, a primary survey was conducted using questionnaire among the randomly chosen 1000 paddy farmers. Notable ICT tools that include Cable television, radio, mobile phones, Voice SMS, social media, landline, computer, online information services were studied. The main objective was to compare the usage pattern of Voice SMS, Cable TV and Whatsapp across age groups and gender, to evaluate the impact of Voice SMS in terms of Savings and to estimate the penetration of Voice Messaging Services across the Age Categories. The study has revealed that the age variable influences the adoption of technology by the paddy farmers. Farmers of the age group 40-50 years value the VMS more than their other age counterparts. The receipt of Voice SMS advisory services has made a positive impact on the savings on almost all the paddy farmers. However, one third (29 %) of the farmers are not satisfied with the length of the message received by Voice SMS. Around 42 % of the farmers of the Paddy farmers have expressed interest to receive advisory services for other crops too. An investigation into other crops normally sown by Paddy farmers will help agro-input companies to develop crop specific services to this population. Communication through Cable TV seems to have highest reach for age group 40-50 years (39%) age category. Farmers and agriculture labors who constitute 22 per cent of Indian Population, the consumers of agricultural inputs are also the major consumers of other products. Nevertheless not all modes of digital marketing effectively reach the farmers' segment. Specific digital communication such as voice short messaging services for the farmers-consumer segment is an effective and handy tool to reach. Though, whatsapp is popular among the general consumer population it has its own constraints like possession of smart phone and internet access to penetrate the farmers' segment.

Introduction

Though agriculture is the mainstay, the rural population is still lagging behind in the usage of modern ICT tools in India. Wheat and Paddy are the two major cereal crops cultivated in India. Paddy is the principal crop extensively cultivated in almost all the districts of state of Tamil Nadu. Rice, the cereal grain from Paddy, is the staple food for people living in Eastern and Southern parts of India. Though the production of rice in India shows stagnancy in the past couple of years, the production performance in Tamil Nadu is on the increasing trend. Also, none of us can deny the fact that the operational land holding under rice is shrinking[1] year on year. The economic times dated 8th October, 2014 reports that India would emerge as the largest exporter of rice in the world market. With the rising demand in the global market, the adoption and diffusion of Information and Communication Technology (ICT), System of Rice Intensification (SRI), Use of short duration resistant cultivars, Integrated Pest Management (IPM) practices have major role in the in increasing the rice productivity. Modern age ICT

[1]B.C.Barah, 2009, "*Economic and Ecological Benefits of System of Rice Intensification (SRI) in Tamil Nadu",* Agricultural Economics Research Review, Vol.22 July-December 2009, 00209-214

applications particularly SMS, Whatsapp, Cable Television, Call Center Services, etc. have changed the dynamics of agricultural practices.

Review of Literature

Mugwisi, Tinashe, Mostert, J., Ocholla, D.N., (2015) research studies have shown that any ICT intervention is likely to have a significant impact on enhancing agricultural production, marketing and post harvest activities[2] . Studies have shown that any information and communication technology (ICT) intervention that improves the livelihoods of poor rural families is likely to have a significant impact (direct and indirect) on enhancing agricultural production, marketing, and post-harvest activities. Notable ICT services include: online information services; communication between researchers, extension (knowledge) workers, and farmers; updates on current market information; weather forecasting; input supplies; and credit availability. The lack of up-to-date ICTs can negatively affect information access and utilization among information users. The study sought to investigate the levels of ICT access and utilization by researchers and extension workers within the Ministry of Agriculture, Mechanisation and Irrigation Development and how this affected the generation and dissemination of agricultural information among researchers and extension workers. Survey questionnaires were distributed to researchers at the various institutes in the five agro-ecological zones and to extension workers in 10 provinces. The study revealed that the role of ICTs in work and as an information channel was considered inadequate despite the indications by the majority of extension workers and researchers that they had access to ICTs. Findings on the utilization of ICTs in managing information generated by the Departments of Research and Specialist Services and Agricultural Technical and Extension Services revealed that while some ICTs were used to generate documents, most distribution of documents involved hard copies. Available ICTs included computers, printers, telephones, television, Internet, mobile phones, and fax machines, and these were considered effective in the dissemination of agricultural information, although the levels of effectiveness varied according to the resources and respondents.

Shaik. N. Meera, Anita Jhamtani, and D.U.M. Rao (2004) conducted a study that examined the performance of three ICT projects in India. The projects have quite different origins and purposes, but all are concerned with improving the delivery of information to farmers and other rural dwellers. One project is managed by the government of Madhya Pradesh as part of an exploration of e-governance. A second project is run by sugar cooperatives (with some government support) in Maharashtra and attempts to expand services to growers. The third project is an experiment by a large private agricultural input supplier to provide information to farmers in Andhra Pradesh. The study describes the organisation of each project; discusses the types of farmers involved and assesses their utilisation of the services; and looks at the backgrounds and performance of the functionaries who manage the projects. The projects studied varied with respect to the type of services provided, but these included marketing information, extension advice, information about rural development programmes, and other information from government and private sources.

Significance of the Study

Mobile phones are becoming an essential device for all types of users irrespective of the occupation. In India mobile technology has unleashed a paradigm shift in the communication medium to reach out to the masses. This medium is effectively used by selected agro-input firms among which voice based mobile services to the farming community is one. Hence this study is designed to examine the effective use of this modern ICT tools in dissemination of information presently, with special reference to Voice Short Messaging Service. As paddy is a major cereal crop that contributes significantly in agricultural production, the researchers have restricted their study to the paddy farmers across the state of Tamil Nadu. Tamil Nadu is one among the top ten rice-producing states in India[3]. The study aims at evaluation of Voice SMS services, Cable TV Services usage of the paddy farmers across different agro-climatic zones. A primary survey was conducted using questionnaire among the randomly chosen 1000 paddy farmers. Notable ICT tools that include Cable television, radio, mobile phones, Voice SMS, social media, landline, computer, online information services were studied

[2]Mugwisi, Tinashe, Mostert, J., Ocholla, D.N., 2015, *" Access to Utilization of Information and Communication Technologies by Agricultural Researchers and Extension Workers in Zimbabwe",* "Information Technology for Development" , Vol 21 Issue 1 , PP 67 – 84.

[3]Sources:Directorate of Economics and Statistics, Ministry of Agriculture, http://mospi.nic.in/Mospi_New/upload/SYB2015/ch8.html

across the 3 different districts in various agro-climatic zones where paddy is extensively cultivated.

Objectives

1. To compare the usage pattern of Voice SMS, Cable TV and Whatsapp across age groups and gender
2. To evaluate the impact of Voice SMS in terms of Savings
3. To measure the diffusion of 'WhatsApp' Instant Smart Messaging across gender
4. To estimate the penetration of Voice Messaging Services across the Age Categories.
5. To measure the impact of message attributes on the perceived relevance of the advisory services.
6. To classify the number of variables into a few factors that impacts the delivery of voice message to farming community.

Need for the Study

With the diffusion of technology in every field, use of ICT tools has a great scope in marketing of agricultural inputs and produces too. Paddy farmers in South India, especially in Tamil Nadu are the major consumers of seeds, major and minor fertilizers, pesticides, etc where a number of government, quasi government and private companies operate. This paper attempts to examine the diffusion of selected ICT tools viz., Voice Messaging Services, Cable TV among the paddy growers in Tamil Nadu. The study area comprises of the three major rice producing districts from the three selected National Agriculture Research Project (NARP) agro-climatic zones of the state, viz., Cauvery Delta zone, Southern High Rainfall zone and North Eastern zone that covers all the major areas of paddy cultivation in this state. Though a vast research on ICT in Agriculture has been done in the past decade, there is limited research done on the penetration of mobile usage and mobile based services in agriculture. Crop specific study viz. Paddy of ICT applications, particularly voice SMS in agriculture has also been less covered. To address this research gap, the study was taken up and primary data was collected by administering a structured questionnaire.

Sampling Methodology

The universe is all the paddy farmers who received the services of voice SMS from a private firm. Approximately 10 per cent of the population is fixed as the sample size. The sample size is 1000 farmers are identified for data collection using purposive sampling method. A sample of 1000 farmers was chosen for the study based on various age groups of the farmers. Simple ordinal and interval scales were used besides a few open-ended questions for data collection by interview method and appropriate statistical analytical tools were used.

Limitations

1. Initial pilot Study was not done due to time limitation
2. The study is restricted only to the Paddy farmers of Tamil Nadu and cannot be applied to other geographies.

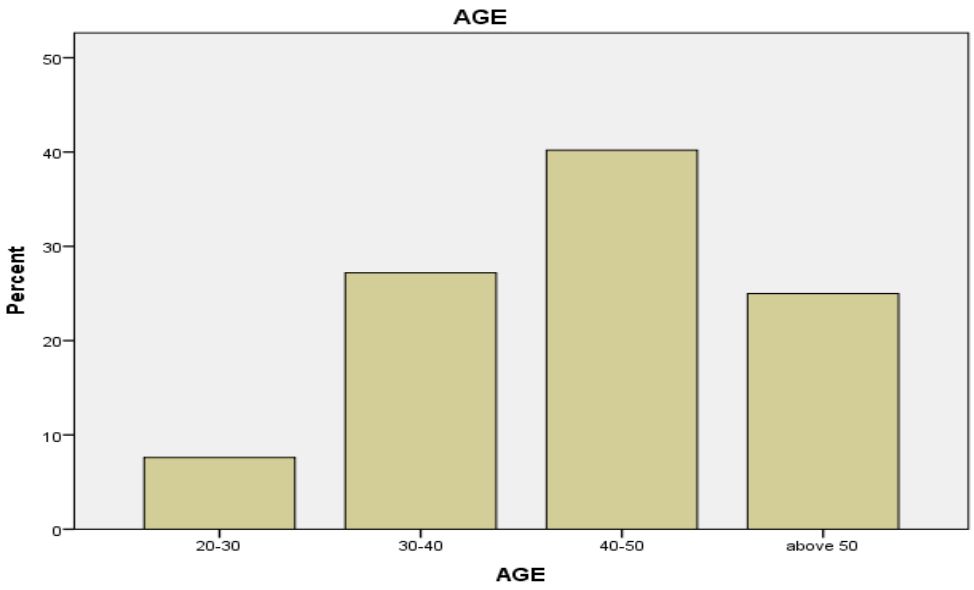
Analysis and Findings

Demographic Profile of the Paddy Farmers

Table 1.1: Age Profile of the Farmers

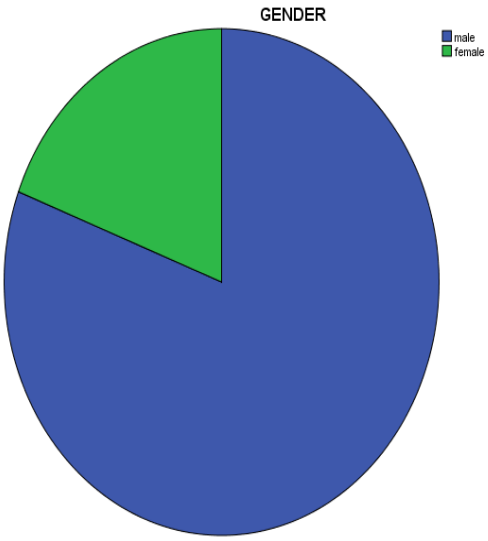
Age Category		Frequency	Percent	Cumulative Percent
Valid	20-30	76	7.6	7.6
	30-40	272	27.2	34.8
	40-50	402	40.2	75.0
	above 50	250	25.0	100.0
	Total	1000	100.0	

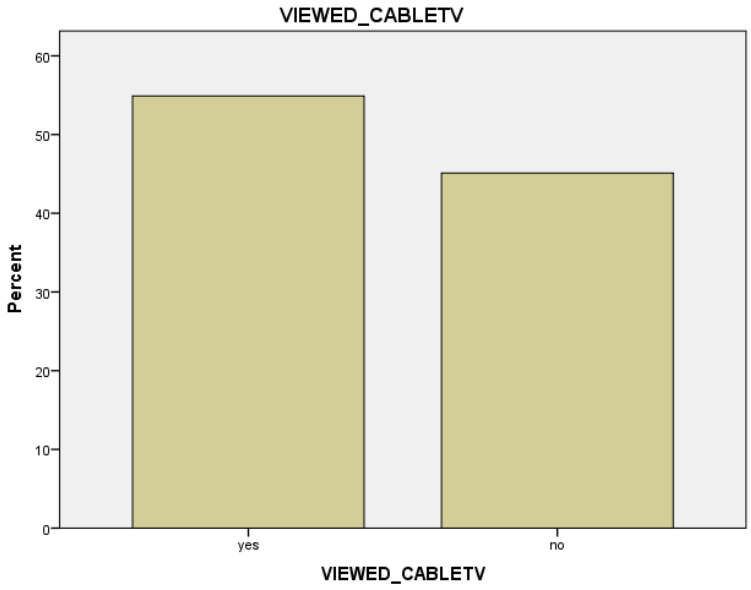
Chart 1.1: Age Profile of the Farmers



Around 67% of the farmers are in the age group of 37 to 50 years. A considerable portion of farmers (25%) are above 50 years of age. Age could be an influencing factor for technology adoption and hence was considered for analysis. The same was verified with a cross tabulation that is presented in Table 2.

Chart 1.2: Gender Composition & Viewership



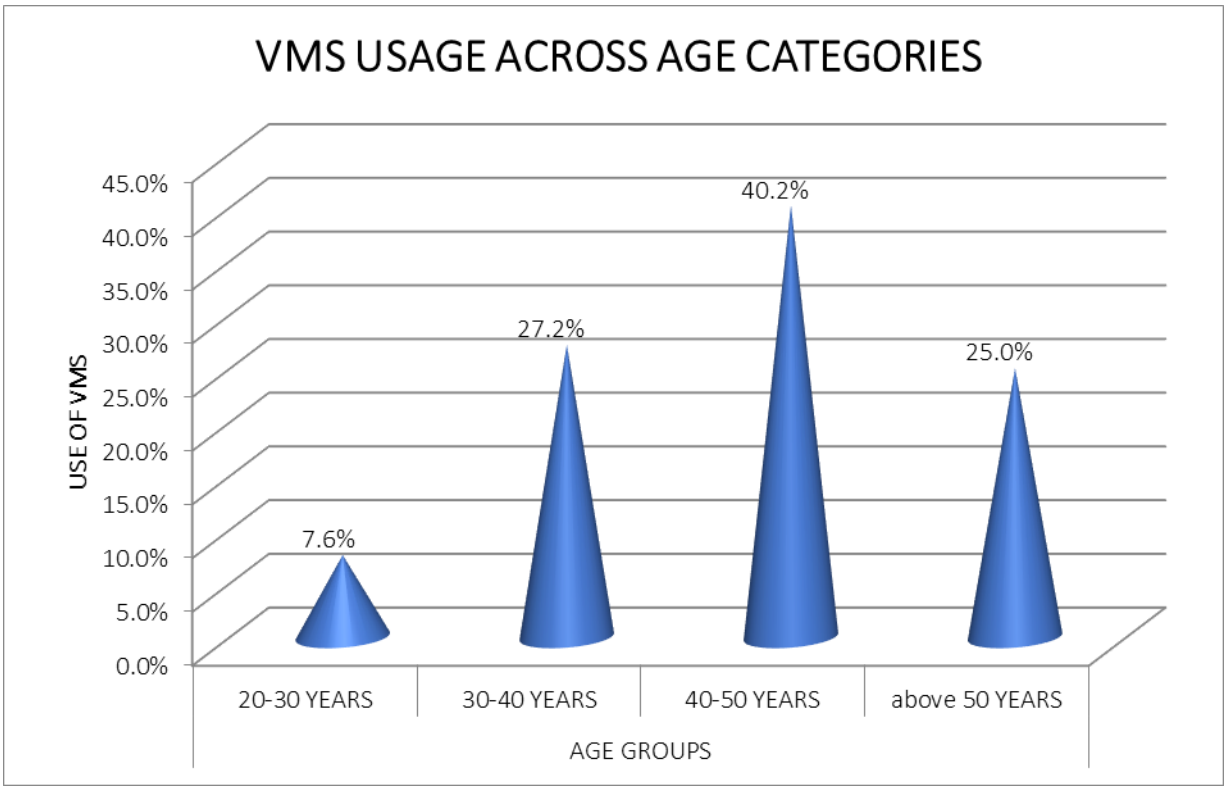


Majority of the paddy farmers (80 %) were males while one fifth of the population are female farmers. While 54 % of the farmers have viewed the services offered through cable TV, a considerate portion has not viewed. The services include news bulletin, scroll news, live phone in program and knowledge quiz.

Gender and Viewership			
Observed Frequencies			
	Column variable		
Row variable	Male	Female	**Total**
Viewed	441	108	549
Not Viewed	367	84	451
Total	808	192	1000
Expected Frequencies			
	Column variable		
Row variable	Male	Female	Total
Viewed	443.592	105.408	549
Not Viewed	364.408	86.592	451
Total	808	192	1000
Data			
Level of Significance	**0.05**		
Number of Rows	2		
Number of Columns	2		
Degrees of Freedom	1		
Results			
Critical Value	**3.841459**		
Chi-Square Test Statistic	**0.174908**		
***p*-Value**	**0.675787**		
Do not reject the null hypothesis			

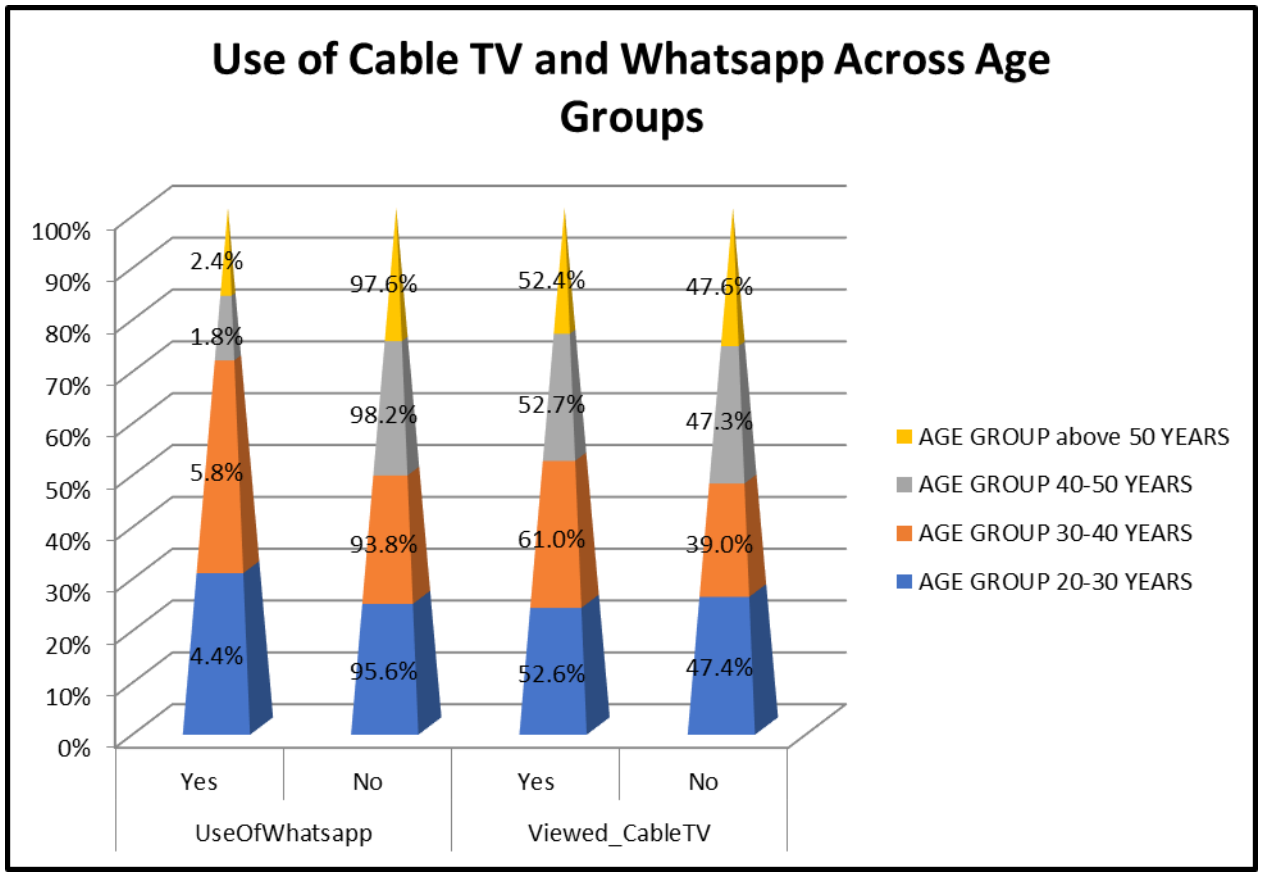
Usage Pattern of Voice SMS, Cable TV and Whatsapp Across Age Groups And Gender

Table: AGE * VMS_Listened Crosstabulation				
			VMS_Listened	
			YES	Total
AGE	20-30	Count	76	76
		% within VMS_Listened	7.6%	7.6%
	30-40	Count	272	272
		% within VMS_Listened	27.2%	27.2%
	40-50	Count	402	402
		% within VMS_Listened	40.2%	40.2%
	above 50	Count	250	250
		% within VMS_Listened	25.0%	25.0%
Total		Count	1000	1000
		% within VMS_Listened	100.0%	100.0%



It is interesting to note from the above table that all the respondents has listened atleast once to the voice based Short messaging service. It is evident from the table and the chart that 67.4 % of the respondents fall in the middle age category that have actively used the Voice SMS.

Age Group	Use of Whatsapp		Viewed_CableTV	
	Yes	No	Yes	No
20-30 Years	4.4%	95.6%	52.6%	47.4%
30-40 Years	5.8%	93.8%	61.0%	39.0%
40-50 Years	1.8%	98.2%	52.7%	47.3%
above 50 Years	2.4%	97.6%	52.4%	47.6%



The chart above reveals the use pattern of cable TV and whatsapp. The cable TV viewership is very high when compared to the mobile based social media message i.e. whatasapp. However, the whatsapp usage is a little higher in the younger group i.e. 5.8% of the 30-40 years age group uses whatsapp for receiving the advisory services. When both the groups are compared, the use of all the three modes audio message, social media message and visual message has been well received by the 30-40years aged group. It can be interpreted those 30-40 years age group is the active group. Any new initiative shall be targeted at this captive group first by the agro companies for easy and effective reach of their messages.

Effect of Advisory Services on Savings

Table 1.3: Savings_Contribn * Savings Crosstabulation

			Savings			Total
			< = Rs.2000	Rs.2001-Rs.5000	Rs.5001-Rs.10000	
Savings_Contribn	YES	Count	404	94	1	499
		% of Total	79.2%	18.4%	0.2%	97.8%
	NO	Count	7	4	0	11
		% of Total	1.4%	0.8%	0.0%	2.2%
Total		Count	411	98	1	510
		% of Total	80.6%	19.2%	0.2%	100.0%

The response rate for the variable "Savings' was only 51% (51 respondents). Out of that the above Table 1.3 reveals that the receipt of advisory services has made a positive impact on the savings on almost all the paddy farmers. Around 98 % of the paddy farmers were able to make a savings because of the advisory services received from RFIS. This finding clearly reveals the need for advisory services among the Paddy Farmers. A saving of Rs.2000 – Rs.5000 per season was reported by 18% of the Paddy farmers.

Diffusion of Whatsapp across Gender

Table 1.4 : Gender * Whatsapp_Avlblty Crosstabulation

			Whatsapp_Avlblty		Total
			yes	no	
Gender	male	Count	38	770	808
		% of Total	3.8%	77.0%	80.8%
	female	Count	3	189	192
		% of Total	0.3%	18.9%	19.2%
Total		Count	41	959	1000
		% of Total	4.1%	95.9%	100.0%

Table 1.4 reveals that it is a very meager percent, less than 5% use whatsapp. This could be attributed to two reasons viz., Ownership of Smart Phone and Internet Services. Though, it could be interpreted that 4% usage is a beginning for whatsapp.

Table 1.5: Whatsapp_Avlblty * Adviseonwhatsapp Crosstabulation

			AdviseonWhatsapp			Total
			yes	no	22	
Whatsapp_Avlblty	yes	Count	22	19	0	41
		% of Total	2.3%	2.0%	0.0%	4.2%
	no	Count	9	921	1	931
		% of Total	0.9%	94.8%	0.1%	95.8%
Total		Count	31	940	1	972
		% of Total	3.2%	96.7%	0.1%	100.0%

The above table 1.5 reveals that it is only 2.3% of the paddy farmers who use whatsapp services normally, wants the RFIS-Advisory Services through it. Atleast 50% of the whatsapp users say that they do not want advisory services through whatsapp. This variable is to be further studied to identify the factors for the denial of the services through whatsapp.

VMS Penetration Across Age Categories

Table 2 : Penetration of VMS across Age Categories		
Age Category	**Total**	**Percentage**
20-30	76	7.6
30-40	272	27.2
40-50	402	40.2
Above 50	250	25
Total	1000	100

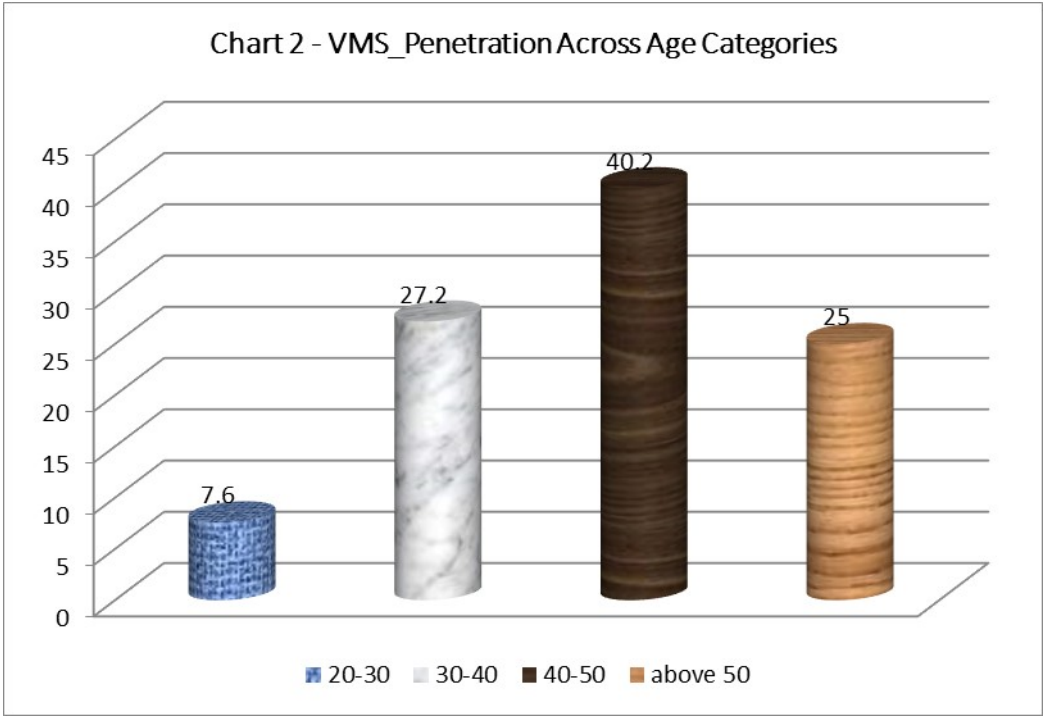


Table 2 and Chart 2 reveal that voice message service has penetrated the 40-50 years age group followed by 30-40 years age group. The penetration percentage is 40% and 27% respectively. With the younger population it was the least, which may be attributed to the less experience in the occupation.

VMS – A Descriptive Analysis

Table 3 : VMS - A Descriptive Analysis					
	N	Minimum	Maximum	Mean	Std. Deviation
NO_OF_VMS_Listened	1000	1.00	27.00	14.4660	6.56490

A descriptive analysis of VMS_Listened reveals that the minimum number of time VMS is listened to as low as once and the maximum number of times it was listened was 27 times. The difference between the minimum and maximum value brings out the range is very wide. However, the average number of times a VMS was listened by a paddy farmer was around 14 times. A standard deviation of 6.5 exposes that the values

disperse to an extent 6.5 times from the mean value of 14. The deviation around the mean is comparatively lesser.

The mean value of 14 times is test verified by the following hypothesis using one sample 't' test.

Ho : The mean no. of times a paddy farmers has listened to VMS ; $\mu = 14$ times

Ha : The mean no. of times a paddy farmer has listened to VMS; $\mu \neq 14$ times

Table 4: One Sample t Test

One-Sample Test

	Test Value = 14					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence	
					Lower	Upper
NO_OF_VMS_Listened	2.245	999	.025	.46600	.0586	.8734

As the significance value is less than 0.05 and therefore Ho is rejected in the one sample 't' test with a confidence level of 95%. Though the descriptive statistics reveals that the mean number of times the entire population of paddy farmers has listened to VMS is significantly different.

Table 4.2 VMSREQMT_OtherCrops

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	409	40.9	42.0	42.0
	NO	564	56.4	58.0	100.0
	Total	973	97.3	100.0	
Missing	System	27	2.7		
Total		1000	100.0		

Around 42% of the farmers of the Paddy farmers have expressed interest to receive advisory for other crops. An investigation into other crops normally sown by Paddy farmers will help RFIS to develop crop specific services to this population.

Table 5 : Advice Reach_Cable TV Across Age Groups

			Viewed_CableTV		Total
			yes	no	
Age	20-30	Count	40	36	76
		% within Viewed_CableTV	7.3%	8.0%	7.6%
	30-40	Count	166	106	272
		% within Viewed_CableTV	30.2%	23.5%	27.2%
	40-50	Count	212	190	402
		% within Viewed_CableTV	**38.6%**	42.1%	40.2%
	above 50	Count	131	119	250
		% within Viewed_CableTV	23.9%	26.4%	25.0%
Total		Count	549	451	1000
		% within Viewed_CableTV	100.0%	100.0%	100.0%

As in the case of VMS, the reach of the advice through cable TV is highest for the 40-50 years (39%) age category when compared to other age groups. However 45% of the paddy farmers have not received advice through the cable TV.

Table 6 : Advice Reach_Cable TV Across Gender

			Viewed_CableTV		Total
			yes	no	
Sex	male	Count	441	367	808
		% within Sex	54.6%	45.4%	100.0%
	female	Count	108	84	192
		% within Sex	56.2%	43.8%	100.0%
Total		Count	549	451	1000
		% within Sex	54.9%	45.1%	100.0%

The above table no. 6 reveals that the cable TV viewership is slightly higher among the female farmers than male farmers (2% only).

Table 7: Satisfaction on VMS Attributes

Satisfaction Response	Clarity	Audibility	Msg_Lngth	Pronunciation
Satisfied	84.6	80.6	68.4	84.3
Neither Sat. Nor Dissatisfied	14.8	16.3	28.5	15.2
Dissatisfied	.6	.5	.5	.5
Total	100.0	97.4	97.4	100.0

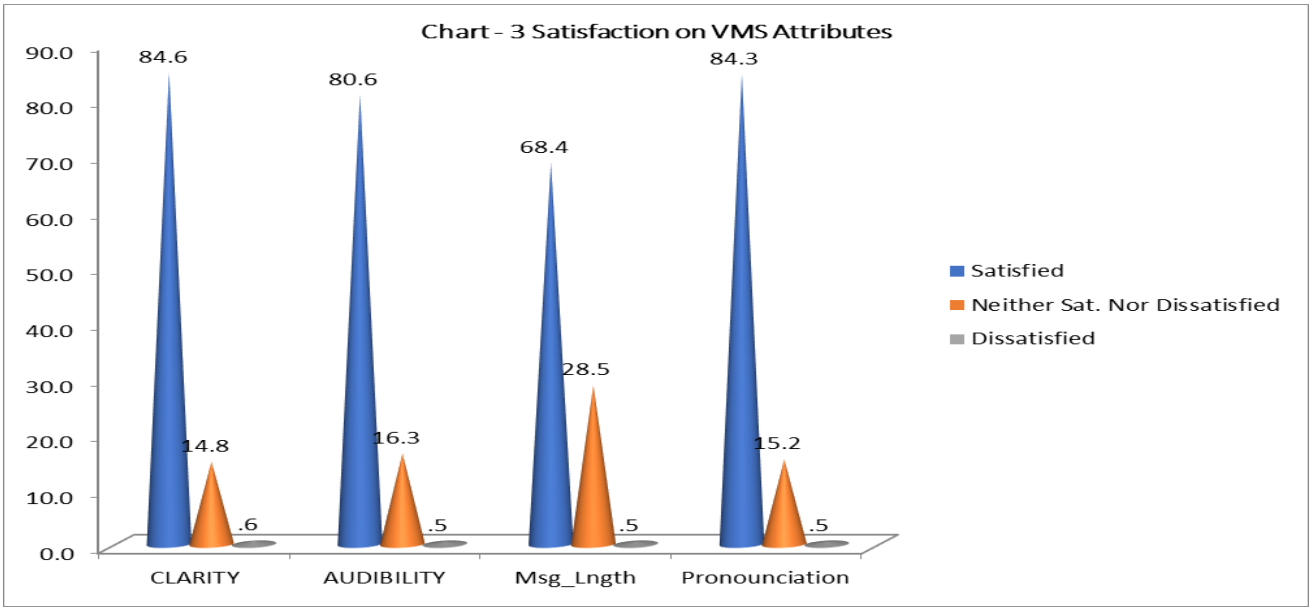


Table 7 and Chart 3 given above indicate that atleast one third (29%) of the farmers are not satisfied with the length of the message. RIF can look at reducing the length of the messages or can look up giving very short effective messages.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.492	.490	.564

a. Predictors: (Constant), Pronunciation, Length, Audibility, Clarity of Voice

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	297.913	4	74.478	234.553	.000[b]
	Residual	307.689	969	.318		
	Total	605.602	973			

a. Dependent Variable: PerceivedUse_SoilMGT

b. Predictors: (Constant), Pronunciation, Length, Audibility, Clarity of Voice

49% of the variance is explained by the model and there is only 0.002% difference between R square and adjusted R square values. The model is fit.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.087	.064		-1.374	.170
	ClarityofVoice	.461	.110	.220	4.193	.000
	Audibility	.216	.092	.108	2.338	.020
	Length	-.273	.049	-.163	-5.616	.000
	Pronunciation	1.042	.102	.494	10.198	.000

a. Dependent Variable: PerceivedUse_SoilMGT

Perceived Use_SoilMgt
= (-0.087) + (0.461) Clarity of Voice + (0.216) Audibility - (0.273) Length of Message + (1.04) Pronunciation

The above regression model indicates that the pronunciation in the message has more positive impact on the Perceived use of the soil management practices followed by the clarity of the voice.

Reliability Test

The scale of measurement in the used questionnaire was developed by the research team that has to be checked for its consistency in measuring the responses. Cronbach's coefficient alpha is the measure that estimates the consistency of items included in the questionnaire that is applicable on minimum interval scale. This analysis was performed that included the variables –No. of VMS_Listened, Clarity of Voice,

Audibility, Length, Pronunciation, Usefulness on Soil Management, Seed Management, Cultivation, Nutrition, Pest and Diseases Advice. The outcome of the reliability analysis is presented in the following Table No. 9.

Table 9: Reliability excluding No.of VMS Listened

Cronbach's Alpha	N of Items
.931	9

The Cronbach's Alpha is high (0.937) and thus the scales developed and used in the questionnaire were highly reliable.

Perceived Relevance of the Advice

As the relevance of the advice was measured on a ordinal scale, non-parametric Kruskal Wallis H Test was carried out to know whether the perception significantly differed across different age categories.

Ho : There is no significant difference in the perceived relevance of the advice across age groups
Ha: There is significant difference in the perceived relevance of the advice across age groups

Table 10: Test Statistics[a,b]

	Relavance_of_advisory
Chi-Square	10.543
Df	3
Asymp. Sig.	.014

a. Kruskal Wallis Test

b. Grouping Variable: AGE

The Kruskal-Wallis H test showed that there was significant difference in the variable Relevance_Of_Advisory between the different age categories. The p value = 0.014 which is less than 0.05 (alpha value), which means that the perceived relevance of the advisory received is not the same across the age categories.

Exploratory Factor Analysis

The variables that were used for data collection, identified by field experts and measured using the interval scale were analyzed to explore the dimensions using principal component analysis. The output is given in Table 11 and 12.

Table 11: Total Variance Explained

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.195	68.835	68.835	6.195	68.835	68.835	4.121	45.787	45.787
2	1.112	12.356	81.191	1.112	12.356	81.191	3.186	35.404	81.191
3	.717	7.970	89.161						
4	.253	2.812	91.974						
5	.194	2.160	94.133						
6	.170	1.890	96.023						
7	.142	1.575	97.599						
8	.126	1.400	98.999						
9	.090	1.001	100.000						

Extraction Method: Principal Component Analysis.

Table 12: Rotated Component Matrix[a]

	Component	
	1	2
Seed_Management	.875	.325
Pest_Disease_Management	.873	.313
Usefulness_Soil_Management	.869	.314
Cultivation_Techniques	.817	.285
Nutrition_Management	.805	.380
Audibility	.356	.846
Clarity of Voice	.405	.831
Pronunciation	.450	.801
Length	.166	.781

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

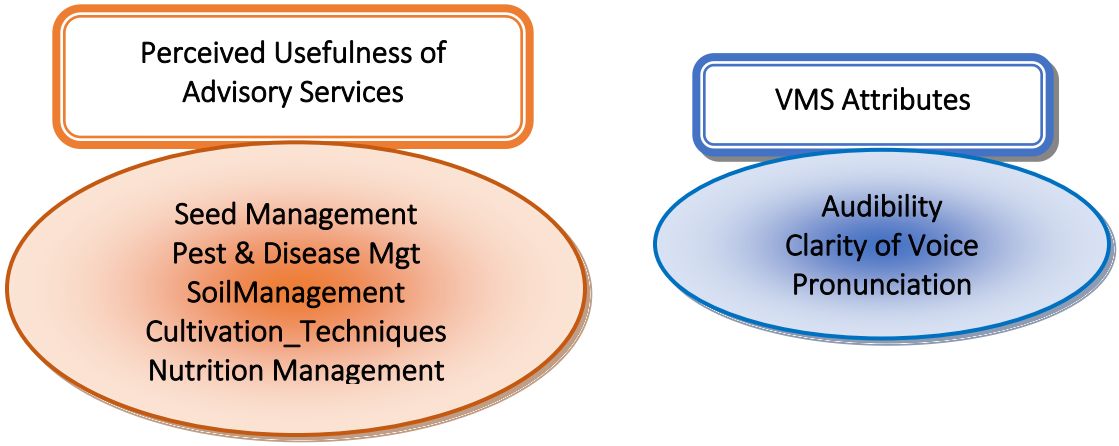
a. Rotation converged in 3 iterations.

It is evident that component 1 and 2 has high Eigen values 6.1 and 1.1 respectively, that indicates that these two factors can be retained. High factor loading for variables Seed Management, Pest and Disease Management, Soil Management, Cultivation_Techniques and Nutrition Management was seen on component 1 which can be termed as **Perceived Usefulness of Advisory Services.** High factor loading for the variables Audibility, Clarity of Voice, Pronunciation, and Lengthof the message was seen on component 2 which can be titled as **VMS Attributes,** after rotation.

Findings & Suggestions

Age: Around 67% of the farmers are in the age group of 37 to 50 years. A considerable portion of farmers (25%) are above 50 years of age. Age could be an influencing factor for technology adoption and the same was verified with a cross tabulation. The cross tabulation (refer Table 2 and Chart 2) reveals that voice message service has penetrated the 40-50 years age group followed by 30-40 years age group. The penetration percentage is 40 % and 27% respectively. So it can be interpreted that the elderly population value the VMS more.

1. **Gender:** Majority of the respondents (80 %) were males while one fifth of the population are female farmers. While 54 % of the farmers have viewed the services offered through cable TV, a considerate portion has not viewed. The services include news bulletin, scroll news, live phone in program and knowledge quiz.
2. **Savings:** The receipt of advisory services has made a positive impact on the savings on almost all the paddy farmers (refer Table 1.3). Around 98 % of the paddy farmers were able to make a savings because of the advisory services received from RFIS. This finding clearly reveals the need for advisory services among the Paddy Farmers. A saving of Rs.2000 – Rs.5000 per season was reported by 18 % of the Paddy farmers.
3. A very meager percent, less than 5 % use whatsapp (Table 1.4). This could be attributed to two reasons viz., Ownership of Smart Phone and Internet Services. Though, it could be interpreted that 4% usage is a beginning for mobile based social media.
4. **Whatsapp:** Only 2.3% of the paddy farmers who use whatsapp services normally, wants the RFIS-Advisory Services through it (Table 1.5). Atleast 50% of the whatsapp users say that they don't need advisory services through whatsapp. This variable is to be further studied to identify the factors for the denial of the services through whatsapp.
5. One fourth of the paddy farmers have shown interest for a case study (Table1.6). A list of interested farmers is attached in Annexure II.
6. **VMS:** The average number of times a VMS was listened by a paddy farmer was around 14 times. A standard deviation of 6.5 exposes that the values disperse to an extent 6.5 times from the mean value of 14. The deviation around the mean is comparatively lesser.
7. **VMS Penetration:** Voice message service has penetrated the 40-50 years age group followed by 30-40 years age group (Table 2 and Chart 2). The penetration percentage is 40% and 27% respectively. With the younger population it was the least, which may be attributed to the less experience in the occupation.
8. Around 42 % of the farmers of the Paddy farmers have expressed interest to receive advisory for other crops too. An investigation into other crops normally sown by Paddy farmers will help RFIS to develop crop specific services to this population.
9. As in the case of VMS, the reach of the advice through cable TV is highest for the 40-50 years (39%) age category when compared to other age groups. However, 45% of the paddy farmers have not watched/received advice through the cable TV.
10. Cable TV viewership is slightly higher among the female farmers than male farmers (Table 6).
11. One third (29%) of the farmers are not satisfied with the length of the message. RIF can look at reducing the length of the messages or can modify them into very short effective messages (Refer Table 7 and Chart 3).
12. **Perceived Relevance of the Advice: T**he perceived relevance of the advisory received is not the same across the age categories.
13. **Dimensions and Variables:** The variables clubbed on the following Components. There is further scope to verify the results of principal component analysis; farmer clusters can be identified that can be effectively used to identify the segments and accordingly programmes can be formulated for the target clusters.



Discussion

The study majorly was an exploratory study to assess the diffusion of RFIS – VMS. The voice messaging services has penetrated to 67 % of the population which is high and it can be concluded that Voice Messaging Services was effective among the Paddy farmers in Tamil Nadu. The study has brought relevant findings to the marketers of agricultural-input and agro-based companies by means of digital interventions. Though digital marketing tools comprise of digital technologies mainly on the internet, it also include mobile phones, display advertising and other digital medium. In this context, the study has focused on estimating the penetration of voice messaging services among the paddy farmers and measuring the impact of message attributes on the relevance of such services. Farmers and agriculture labors constitute 22 per cent of Indian Population and majority of them use mobile phones. As consumers of agricultural inputs such as seeds, pesticides, fertilizers, agricultural implements, farmers are the major consumers. Nevertheless not all modes of digital marketing effectively reach the farmers' segment. Specific digital communication such as voice short messaging services for the farmers-consumer segment is an effective and handy tool to reach. Though, whatsapp is popular among the general consumer population it has its own constraints to penetrate the farmers' segment. Major constraints include possession of smart phone and affordability to internet services. Marketers can promote their product/service offers, follow-up, advisory services, etc. through voice message to reach the farmers segment.

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Case Study: Villamart - The inspirational Story of a Rural Entrepreneur

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The Challenges

Why are there not many rural entrepreneurs in India? This is not a simple question to answer. This is a challenge for both government and other agencies to accept and propose solutions. India is a nation of farmers and the rural economy is a farmer dominated economic structure. Yet there is little investment happening in the rural ecosystem to enhance the life of farmers. In this context, India needs to encourage young blood to come forward and make Rural India as their workplace. The challenge of inspiring rural entrepreneurs might be the biggest blocking stone in energizing rural economy and rural marketing. So why are there fewer rural entrepreneurs in India and who can be the best rural entrepreneur in this country? This case highlights these challenges in particular and has the motive of bringing a motivational story of a young boy who left all his high aspirations and came back to his village to initiate something to change people's life.

Response

There are not many like Dr. Ramesh Chandra Biswal. He did his Ph.D. from IIT Kharagpur and Post Doc from a reputed US university. He was getting a handsome six-figure salary and had a well-settled life in the US. He had everything, which we associate with the dream of youth and label as successful. Yet inside his heart, he was not happy. Something always disturbed him from within. The news of farmers' suicides and their pathetic living conditions in rural India always made him cry. He had questioned himself many times about his role as an Indian and as a son of a farmer. So he decided to come back to Odisha and started a new venture, named Villamart (Village market in Odia *Gaon Hat*) that can give hope to many farmers in rural Odisha. He is the Founder and CEO of Villamart Ltd. running a social entrepreneurship model in Villages of Nayagarh district in Odisha.

Villamart has made significant progress in rural India ensuring the core value of developing a nation with its rural ecosystem's overall growth. The startup is working to create substantial employment in rural and remote areas, also encouraging women to work in their free time in flexible time slots as it connects village households with mobile marketing and e-commerce. It provides consultancy services to farmers on recent farming techniques to achieve sustainable agriculture; it also develops advanced equipment for farming and other professional services. Some of the major objectives of this organization are to bring people closer to cultivation, women empowerment in farming and protecting the larger interest of farmers in rural India.

Dr. Ramesh Chandra Biswal (extreme right) standing with his employees and mobile store

Action Taken

Villamart is a model he has developed to provide farmers in villages a better market place with all kinds of agricultural and marketing solutions. He got this idea when he was a child, looking at the villagers' problems in a deeper introspection. He said *"my journey from childhood days from a small village to the US through IIT Kharagpur led me to think on this line. My learning on each of my steps helped me to think and chalk out a plan on this entrepreneurial journey."* Here he decided to create something that rural India could have been dependent on, an agricultural and marketing model. He says "we want a retail chain for villages and small cities to avail all the daily consumable products. Simultaneously we can collect the farm produce directly from the farmers removing the middlemen. For a district, we are planning to make 1000 outlets (both mobile and static) by franchising/collaborating with the shopkeepers and want it to complete for Nayagarh district by 2022." This might be a very ambitious decision but quite possible.

The strengths of Villamart are unique. It is working for the rural people following a robotic retail chain model, where its competitors are its customers and its customers are its producers and suppliers also. The organization is having its market research team and R&D team. The weakness of his business model is nothing new to us, as we all know rural India is not a well-documented story. So he feels he has a lot of unforeseeable risks. At the same time, he has assessed that India lives in villages, and two-thirds of the labor force can help him.

Rural women, especially SHG, can be a great help. And as there are no structured market places in small cities and villages, and rural economy is dependent on its immediate periphery, he can create a chain of stores to do business with farmers. Still, there are some problems he is facing every day like communication problem with villagers. Most of them are not so educated and open to discuss. It requires a different convincing power to open dialogue with rural masses. More over, internet and network issues make his job challenging.

For Dr. Ramesh, rural marketing is a challenge for Villamart. He says "definitely, rural marketing is very challenging because of multiple reasons. But, as I have grown up in rural areas, I am used to the problems as I have seen and experienced them from my childhood days. Almost half my life, I have spent in villages and rest half in small to big cities and also abroad. All these experiences have, as a combination of wisdom, always assisted me to think on this path of social work through a revenue model.

Regarding the achievements of Villamart he says "We are just going to complete three years this June and we started from zero levels. We are trying to build one of India's largest retail chains, which will play a great role in empowering rural people. As we operate in Nayagarh district we had a sales figure of 29 lakh in 2018, and 65 lakh in 2019 and 40 lakh at the end of May 2020. We have a customer base of 12000 rural consumers combining our mobile and one static outlet data. We have provided direct jobs to 12 people. We have involved nearly 2000 households of 25 villages and they are the beneficiaries of our services at present. Villa Mart will be expanded exponentially in the coming days.

Dr. Ramesh has achieved success by providing direct benefits to farmers by becoming a co-creator of value and not like the traditional middleman. He is directly procuring the farm produce from the farmers. In this way he is working in the area of opportunity identification, Risk minimization, Policy implementation, extending local support, Collaboration, and Promotion in different forms and creating awareness.

Dr. Ramesh is of the opinion that villagers accept him as a son of the soil. He always interacts in his mother tongue, Odia. He always talks to rural people in the first instance and his behavior and acquaintance have made him close to many. He also understands the issues of sustainable livelihood. Because of his efforts, people are getting a supermarket experience at the doorstep and mostly women are involved in purchasing the daily consumable products. He is providing support for vegetables for grading, sorting, storing to processing until it reaches the final consumer. Dr. Ramesh is optimistic and he hopes to fulfill some of his other dreams in his village.

Questions for Discussion

1. What are the qualities required to be a rural/social entrepreneur like Dr. Ramesh?
2. What are the opportunities and challenges rural India poses for a person like Dr. Ramesh and how is he facing them?

Course Positioning: This can be discussed in Rural Marketing, Rural Entrepreneurship, Communication courses.

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Case Study: Community Participation – Phayeng Village, Manipur

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Challenges

Climate change, caused by emissions from industries and other human activity, is making the world warmer, disrupting rainfall patterns and increasing the frequency of extreme weather events. No country is immune to these forces, but India is particularly vulnerable.

As climate change becomes more palpable, some parts of India will be more affected. Comparing the average temperature in 2009-18 to that in 1950-80 reveals that some pockets have already become much hotter. In parts of Rajasthan, Gujarat, Tamil Nadu, Kerala, and the North-East, average temperature over the last decade has risen by nearly 1° C compared to the historical average in the 1950-80 period.

The North East of India is acutely vulnerable to the dangerous consequences of climate change because the states' poor economic conditions don't empower them to fight against the odds, said India's first climate vulnerability assessment report for Himalayan states. The report found that socio-economic factors like poor per capita income, limited crop insurance, few farmers taking loans, and poor participation in rural job schemes to enhance the vulnerability of people to climate change living in the north eastern states.

North East India compromises the states of Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Arunachal Pradesh, and Sikkim. These Himalayan states are highly sensitive to climate change, whose impact is being felt in areas as diverse as health and agriculture. Most of the region has been undergoing a significant long-term change in terms of increased frequency and intensity of extreme temperature and rainfall events over the last decade.

There are various reasons which drive climate change in North East India. One of the significant factors is that the forests in these regions are being cleared off at an alarming rate. Many reasons contribute to deforestation, each with its own causes and negative environmental impacts. Deforestation is being done to make headway for large scale agriculture, livestock pasturing, small scale agriculture and colonization, unsustainable logging, fires, charcoal and fuelwood, mining, infrastructure, and hydroelectric power plant. Although there is much cause for concern when considering the degradation of forests, many still have hope that with the right changes in policy and perception, forests can still be saved.

Responses

Forests play many important ecological roles. From helping to mitigate climate change; providing homes for many species of plants and animals (some endemic to forested regions); providing food, medicine, and livelihoods for people; to the intrinsic values of forests, these essential ecological powerhouses are irreplaceable. Realizing these essential values, the forest provides to the community, the people of village Phayeng through community participation has rehabilitated their deforested village into India’s first carbon-positive village.

The village Phayeng comes under the sixth schedule of the Constitution and belongs to the Chakpa community in Imphal, Manipur. The village is surrounded by three densely forested hillocks with fruit trees at the center and a stream known as Maklang river flows along with the village. In the year 2019, the village has 660 households. The village is being tagged as India’s first carbon-positive settlement. The village will receive a grant of Rs. 10 crores in phases to facilitate afforestation in the catchment of the river Maklang river.

The journey of Chakpa community in transforming the village from dry and denuded village to lush territory of forest having 95 tree species with medicinal and timber value, was treacherous. As a result of timber-related disputes between the communities of the village in the period of 1970 – 1980, the members of the community deforested the region and the communities witnessed bitter rivalry over the sharing of the economic value of forest produce. In the following years of 1980 – 2000, the region had no trees on the hills, which surrounds the village.

These natural forestry ecosystems were sustaining the village from time immemorial. The system was providing everything to the community for their sustenance and protecting them from any adverse

impact of climate change. But, after clearing the forest areas, the communities were faced with the scary impact of climate change. The villagers realized that the area had become extremely warm. There was no water and people were falling ill. The stream was getting withered away day by day. The communities have now realized the value of resources. The communities understood that micro-climate can change in the absence of forest. By seeing the imminent threat to their survival form climate change. The communities deliberated upon the resurrection of the forest. Finally, the villagers decided that the forest should be rejuvenated at any cost. The communities envisioned the participatory approach and traditional methods for rejuvenation of forest.

To support the cause of the Chakpa community, the state government of Manipur approached the central government for funding requirements. The Ministry of Environment, Government of India (GOI) upon studying the developmental project report of the state government, approved for its funding under the National Adaptation Fund for Climate Change (NAFCC). The NAFCC a central scheme to support adaptation to climate change impact in various states. The National Action Plan on Climate Change (NAPCC) launched in 2008 embodies the government's vision of addressing the challenge of climate change through a process of sustainable development. The goal of NAPCC is to enhance the ecological sustainability of our development path.

In the year 2015-16, the Ministry of Environment under the National Adaptation Fund for Climate Change allotted an initial corpus of INR 5 crores for Model Carbon Positive Eco-Village in Phayeng of Manipur. The total cost of this project was INR 10 crores and its duration would be three years. The expertise for implementing for the project would be provided from the National Bank for Agriculture and Rural Development (NABARD), which is a national implementing entity under NAFCC, GOI. The executive entity for the disbursement of the amount to the community was Directorate of Environment, Government of Manipur.

Action Taken

The community of Village Phayeng explored various options towards their challenge of forest conservation and management. They firstly explored the top-down model of conservation. But in this model, there were major drawbacks that their forest protection committee known as Umang Kanba, pointed out. In the top-down model, all the desired interventions had to come from state institutions, which is not possible for the village Phayeng, given their low socio-economic value to the state. In this model, it would take a significant amount of time before any tangible benefits are visible on the ground. And in this model, it will leave their traditional knowledge of forest conservation in the project implementation. So the committee decided to look for an alternative which is the bottom – top model of conservation. This model is also called the participatory approach of forest conservation. This model has a lot of advantages over the top-down model. In the participatory approach of forest conservation, the community themselves design the conservation interventions, they assume ownership of these interventions. This ownership makes it more likely that these interventions will be promoted, accepted, and supported by the community. It will also reap higher community participation rates. Thus, the committee has gone for the participatory approach of forest conservation and management over the top-down model of the same.

The villagers in their effort to rejuvenate the forest of region, the forest protection committee (Umang Kanba). The Umang Kanba came up with various rules and involved all 660 families in the village in recreating the forest. The forest conservation committee fostered the belief among the communities that the forest is a sacred grove and it needs to be protected.

The participatory approach of forest conservation of villagers involved a lot of their belief and traditional methods for forest protection. They have completely banned hunting in the village except for once a year when a deer is usually killed as a sacrifice to the "forest gods". They have restricted the movement of outsiders into the forest without permission. The forest fires are carefully monitored. They allow extraction of only dry twigs for firewood. The entire 200 acres of the village are patrolled by at least six people every day.

The community-driven participatory approach for forest conservation faces a significant barrier to its community-wide implementation. The major challenges faced by villagers in their participatory approach were a) No initial funding for the campaign; b) A lack of community participation in initial days; c) A lack of commitment among the community to carry out the desired reform; and d) No qualified professional guidance or leadership by the government agency to

the project in their initiation phase. But, Inspite of challenges faced by the community in various project phases of the community-driven forest conservation project, they have successfully adapted to it and implemented it magnificently.

After a decade long campaign from the year 2010, by the villagers for the forest protection, they had witnessed some positive result. Around 25,000 saplings have already been planted in the upper catchment area of the river. The villagers can now practice a multi-crop cycle in a session in comparison to the period before the project started, villagers were practicing agriculture only in the monsoon months. The villagers work round the year and grow horticulture crops like watermelon, beans, cabbage, broccoli, and others apart from paddy. The project had also increased villagers' income by up to thirty percent.

The impact of the projects under NAFCC was to such an extent that the village earned the tag of India's first carbon-positive settlement. The carbon positive settlement implies the activities in the region go beyond achieving net-zero carbon emission to creates an environmental benefit by removing additional carbon dioxide from the local atmosphere.

Lessons Learnt

The participatory approach of forest conservation which is highlighted in the caselet, has gained a lot of popularity for its holistic approach to forest conservation. The approach also brings transparency and accountability factors into the conservation effort.
The short-term benefits of forest conservation by the communities of the village Phayeng, Manipur are that more than 25,000 saplings have already been planted in the upper catchment area of the river; the villagers can now practice multi-crop cycle in a session in comparison to the period before the project started, villagers were practicing agriculture only in the monsoon months; the villagers work round the year and grow horticulture crops like watermelon, beans, cabbage, broccoli, and others apart from paddy and the project has also increased villagers income by up to thirty percent. The long-term benefits of these initiatives are many, some of them are, it has led to an increase in forest cover, resulted in good soil, protection from soil erosion, improvement in water quality, high precipitation in the region, enriches the ecology and biodiversity of the region, etc.

The caselet offers wide-ranging lessons to development students and professionals. Some of them are, a) Deforestation induced climate change have severe impact on the communities; b) The North East India is particularly vulnerable to climate change due to socio-economic and cultural reasons; c) The community-driven bottom-up approach is an effective way to bring long-lasting impacts in the domain of forest conservation and climate change mitigation measures; d) The traditional method of forest conservation is equally potent in forest conservation as the cutting edge scientific method of today's era; e) Seeing the forest as sacred grooves helped in bringing the progressive change in communities' behavior change towards forest conservation and climate change, etc.

Questions for Discussion

1. What is climate change and how is it impacting the productive capacity of ecology?
2. What do you infer from "community participation in forest conservation"?
3. What is carbon positive village/settlement? How have the villagers of Phayeng village accomplished this feat?
4. Explain the role of NAFCC and NABARD in making the forest conservation projects of village Phayeng successful.

Course Positioning

This caselet can be used to elucidate the concept of Climate Change, Environment and Ecology, Forest Resources, Community Participation, Understanding Common Property Resources (CPR) and role of Institutions, People participation and avenues for resource management, Traditional conservation and management practices, etc.

References

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6) (2017, 18 April). “Deforestation and Climate Change”. Climate Institute. Retrieved from <http://climate.org/deforestation-and-climate-change/>

Annexures

Annexure 1:

Figure 1: Phayeng Village, Manipur, Source – Google Earth

Annexure 2:

Figure 2: Community Forest, Phayeng Village, Manipur, <Source: https://www.hindustantimes.com/india-news/a-village-with-carbon-positive-tag/story-i4aeAisAO4oLaIIEK21e8I.html>

Contributors

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Caselet: Watershed Activity and Origination of FPO

Aditya Bagchi (XIMB -RM)
Sarvesh Chaturvedi (XIMB -RM)

Introduction to the Village

Located in the northern region of Karnataka is a district named Kalaburagi. In this district, there is a village named Narona. This village is located 110 km from Solapur, located in Maharashtra and 242 km from Hyderabad, located in Telangana State.

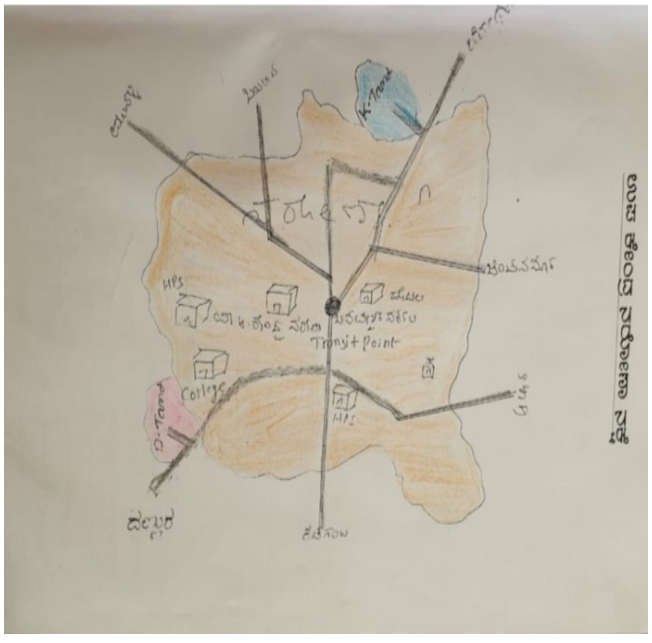
The average temperature during May rises up to 46 degrees Celsius while the minimum comes down to 12 degrees Celsius in December. The potential evapotranspiration is also high accordingly in May and least in December. The predominant wind direction is west, Northeast and North and the wind speed is more than 8 km per hour in the period from May to September.

The region receives an average rainfall of about 750 mm. The drought years are more frequent than the years with excess of rainfall. The southwest monsoon contributes 66%, northeast monsoon 26% while 8% in summers. The probability of occurrence of normal rainfall is 64%. The south west monsoon starts from first of June and extends up to end of September and followed by Northeast monsoon from October to December.[4]

The moderate to deep black cotton soils in the area has montmorillonite clay with basaltic boulders. The geological formation, that is, the basalts covers the watershed. The entire area has clayey texture with boulders occurring as small patches. The three soil categories are Deep Black cotton soil which are very deep and fine textured that one will find in Narona - moderately deep, very dark greyish brown to medium gravelly texture black cotton soils in Bablad Region and Shallow Black soils with boulders in Sangolagi Region. The soil is good and capable to support all crop grown in the watershed such as Bajra, Jawar, Red Gram, Black Gram, Green Gram, Bengal Gram and less suitable for crop like Banana and Rice and others.

Out of the two pictures below, **the picture 1.1** shows the map of Kalaburagi District and the location of the village Narona on it while, the **picture 1.2** shows the map of Narona.

Picture 1.1: Map of Kalaburagi District (Blue mark denoting the location of Narona)



Picture 1.1: Map of Narona (Photographed by Aditya Bagchi, dated: 4 December 2018

[4] The information is obtained from the "Watershed Report" of MYRADA.

Objectives of the Study

1. To explore the process behind the interventions that has been implemented
2. To understand the importance of community mobilization and its role in achieving a goal
3. To understand the role of the Village Watershed Committee (VWC) and their role in the success of the watershed project
4. To understand the challenges faced by farmers and FPOs in reaching the produce to the market

Brief Description of the Study (Research Design)

Semi-structured interviews[5] (Refer to Annexure 1 [4]) were conducted in order to explore the issues faced by the local residents and in this manner, an understanding was developed on the success of the two successful Watershed Projects that were funded by National Bank for Agriculture and Rural Development (NABARD) and implemented by MYRADA.

Ethnographic research methodology was used wherein, there was an interaction carried out with the stakeholders who were involved in the whole process of watershed construction and making of FPOs. Additionally, semi structured interviews were conducted in order to obtain information regarding the events and the data was used for the preparation of the final report that was submitted by MYRADA to NABARD.

Mysore Resettlement and Development Agency (MYRADA) made its intervention in Narona in 2004with the objective of solving the problem of water shortage through watershed development. Water is required for conducting both agriculture and domestic activities in this region of Northern Karnataka (Refer to Annexure 1 [1]). The whole implementation and process lead to the formation of the first **Self Help Group (SHG)** in Narona. To assist the SHGs, the first Resource Centre, that is, **Community Managed Resource Centre (CMRC)** was started. They also aid in carrying out health camps, animal health camps, legal awareness programmes and many others. Moreover, MYRADA pioneered for the initiation of an activity named Participatory Rural Appraisal (PRA)[6] for the first time in the country with the help of Robert Chambers, who visited the Kamalapur Training Institute of MYRADA located in the district of Kalaburagi.

Challenges

Narona is located in the northern region of Karnataka, which has generally received less than adequate rainfall. Since, the dependency of the local people on rainfall has been considerably high, it has led to the following issues:

Water Table Fluctuation

Water table fluctuation is the change in the water table level that is caused by the changes in the precipitation between seasons and years.[7]Water Table Fluctuation has been seen as one of the problem in this region. There have been cases where the bore wells have dried during the summer season. It has been observed that the water level during rainy season varies between 2 to 3 meters below ground level, while 5 to 10 meters for elevated region. During summer the water recedes with much greater depth that ranges from 6 to 9 meters.

Problem of Lack of Water for Irrigation

In this region, mostly all the farmers are dependent on rainfall for agriculture activity and very few farmers have the facility of borewell in their farm. So eventually, it is difficult to harvest a good crop in case of poor rainfall, which is mostly the case. The less rainfall leads to decrease in moisture of the soil which further reduces the scope of irrigation of the crop.

Lack of Drinking Water in Summer Season

Many a times during the summer season and the post summer season when it does not rain it is also very difficult to get clean drinking water in the region. The water from the shallow bore present here often gets mixed with the drainage line and thus results in poor water quality for the people. This also results in increasing cases of water borne diseases in adult and children as shared by the government hospital of Narona.

[5] Information obtained from https://www.oliverparks.com/blog-news/the-difference-between-structured-unstructured-amp-semi-structured-interviews, dated: 10 January 2019

[6]Participatory rural appraisal (PRA) is an approach that aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes.

[7] Information obtained from https://www.nationalgeographic.org/encyclopedia/water-table/ dated: 10 January 2019

The Plight of the Landless Labourer

The landless laborer in this region faces great challenges in this region. As they are the daily wage labourers, they do not get employment every day, at most they get 4 months of employment during harvesting season, while they get employment for 80-100 days through the MGNREGA scheme, but again they do not get full income and the payments are delayed most of the time. So to earn for living they also migrate to different cities and villages for employment.

To highlight the specific problems related to watershed, this is what Malleshappa[8], the President of the Serinala Watershed Project (Refer to Annexure 1 [3]) shared. "In the first year, we faced few challenges making it difficult for us to convince the farmers to conduct activities in their agriculture field. Initially, the farmers used to get afraid that the watershed activity in their field by NABARD could lead to the decrease in their land use for irrigational purpose. Moreover, some had misconception that their land would be seized by the government if they participate in the watershed activity." He further added, "In the first year we only got approval of 100 farmers who participated in the project. In the second year, the number increased to 215 members and after that things changed. Along with this challenge, we also faced the cases wherein, we lost our construction material due to theft of the material. Initially, there were various instances where there was delay in work, mostly due to irregularities in payment. This was because the main official would not be present every time to approve the payment to the labourers and, for daily wage labourer, daily wage is very important for their living. I could not give anything in cash as the fund would directly go into the labourer's account."

Malleshappa further shared about the steps they used to tackle the issues mentioned above; "To pay the wage to the labourers, we use to contact the local *Sahukaar* of the village to pass the fund in the absence of the person in charge of the accounts and payment. Sometimes we had to wait for 10 to 15 days for the fund to be released, but somehow we paid the money to the labourers and we always found a way to keep things going. When the officer responsible for payment would repay, we would pass the money back to the *Sahukaar* and would sit and discuss about how this issue can be avoided in future."

Response

Before the GunjBablad Project (Refer to Annexure 1 [3]) in 2004, NABARD had tried and funded to Non-Governmental Organizations (NGOs) that did not give desired result, mostly due to greed of the members to sue the fund for their benefit. Hence, the benefit could not have reached to the actual beneficiary, that being the farmers. Following this, NABARD turned to MYRADA for implementing watershed projects in the region. After the effective results that GunjBablad Project showed, NABARD continued its funding to the Seri Nala Programme in Narona region for another five years. Malleshappa the President of Seri Nala Watershed Project, which was NABARD's second watershed project through MYRADA stated it as the efficiency and tirelessness exhibited for the benefit of the farmers. He further shared thatMYRADA, one of the oldest NGO in the country with great results in southern region, believed in people's participation since its inception. MYRADA has been successful in mobilizing people to work towards completion of the project. It is also important to know that GunjBablad was NABARD's first project along with MYRADA.

At the start, a **Village Watershed Committee (VWC)** of 11 members was formed for the Seri Nala Watershed Project so as to coordinate the working of the project. In the initial meetings, all the members unanimously decided that Malleshappa should lead this project. At that time, he was not aware about watershed and about its implementation. Hence, he attended training in Kamalapur and a nine days training in Mysore. Malleshappa was a rich farmer and had a good rapport with the other villagers, which made him the first choice among the members of the VWC to lead the project. Laxmi Putra was selected as the Secretary of the VWC. He was the member of village panchayat of the village, had a great rapport with the villagers and played a key role in facilitating meeting like Gram Sabha and villagers for the watershed project. Mallikarjun, who was the secretary of the Gunjbabla Watershed Project, was selected as the CEO of the VWC. His experience in handling the field work in the GunjBablad project helped in facilitating the field work of the Seri Nala project as well.

In the end, Malleshappa had only one thing to say, "It was a team effort of all the eleven members of VWC that made things possible for us."

[8]Information obtained through unstructured interviews from Malleshappa, President of Seri Nala Project

Action Taken

Social Mobilization

In order to explain the farmers about the benefits of the watershed project, several meeting were organized along with NABARD and also with the Gram Panchayat. Initially, there was low participation but, as farmers saw the work going on in other farms, a feeling started to arise among the farmers that if they would not participate they might miss a chance, hence gradually even other farmers started joining in and soon the number went around 500 members. This community mobilization was a result of the frequent meetings and activities that were conducted by VWC.

CEO of the Seri Nala Watershed Project stated that during the meeting, one of the very innovative decision that emerged was that farmers whose land was adjacent to the Nala agreed to pay 12.5% on the total de-silting cost towards maintenance fund. It must be noted that as per the sanction the cost of taking this activity was 100%, which was well informed to the farmers and still they came forward to share their contribution.

Meeting and Audit by NABARD

To check whether the work is going in correct direction or not, NABARD officials from Bangalore use to visit the region and would do the regular auditing. These officials were very prompt and very sincere with the auditing, they use to carry the inch tape to check if things are done properly or not, they use to interview the beneficiary about the work that has been done in their field. They would then share the inputs about what is going wrong and what can be further improved, this kept the whole team of VWC on their toes. The officials would also take sessions where they would further explain the members about the benefit of this project and why it should be implemented correctly. The session by these officials helped in motivating the farmers and in increasing the participation.

Maintenance Fund

The 25% farmers' contribution was collected angst the fixed 16% by NABARD. The excess 9% of the contribution amount is treated as maintenance fund and kept in separate account. This unanimity of opinion regarding the desirability of the work to be taken in the watershed and the willingness to impose certain necessary discipline are some of the factors of Gram Sabha. In all, a sum of Rs.4,50,414 was been contributed towards the maintenance fund by more than 95% of the farmers in the watershed.

Activities

In order to keep people towards the path of development along with the Watershed Project Development in the region, various community organization activities were organized by the VWC like training on book keeping from time to time mostly in Myrada Centre for Institution Development and Organization Reform (CIDOR) Kamalapur, the training centre of MYRADA, training on leadership was organized for VWC members. Training on social issues, tiny and village industries, the entrepreneurship development program helped the villagers understand the nitty gritty of the start and handle their own businesses. Sessions on gender sensitivity, gender issues on conflict resolution and decision making eventually aimed at providing a holistic approach towards the social and economic development of the members. The awareness campaigns like legal awareness campaign, health camp for community, health camp for livestock, awareness campaign for the need of maintenance fund were a combined effort of Climate Change Committee (CC)[9]and VWC who organized them, keeping in mind the ultimate aim of social and economic upliftment of the people of the village.

The money sanctioned and other details of the community organization activities can be found on the Annexure 2.

An interesting point that Mr Malleshappa shared was that one of the reason as to why people joined the project was because many farmers were facing financial challenge. Thus, they found it as a ray of hope for they got work as well as regular payment.

For the successful watershed project, following are the activities[10] that were done and implemented by the VWC along with CC which was funded by NABARD.

Soil Water Conservation

Structures like gully checks, check dam, rock feed check, earthen bund, boulder bund were constructed in the farm area. This helped in conserving the flowing water which was useful in maintaining the moisture of the soil in the post monsoon season. This was also preventing

[9] Another committee formed by village members that works under the guidance of MYRADA.

[10] Information obtained from the watershed report

soil erosion due to sudden rain during monsoon. Thus, thislead towards soil and water conservation.

Picture 6.1: Check Dam in Narona (Photographed by Sarvesh Chaturvedi, dated: 21 December 2018)

Agriculture Production

Training for the use of the waste like cow dung and other agriculture waste was given to farmers. By carrying out vermicomposting, the compost was then used to treat the soil.

Horticulture

Farmers were supported and motivated to lay down and practise kitchen garden in their home. This helped in increasing the options of income by selling the horticulture products.

Picture 6.2: Kitchen Garden in Narona (Photographed by Sarvesh Chaturvedi, dated: 21 December 2018)

Livelihood Activities

To improve the source of income for the landless labourers, loans by the VWC were provided to the labourers in order to purchase dairy animals, through which they can increase their income by selling milk. Similarly, Livelihood activities like sheep and goat rearing, Dairy, mat making, vegetable vending, petty shop, bangle shop were supported by the VWC and members were given loan so that can start with further livelihood activities.

Facilitation of SAG's Formation

During the process of watershed development, 24 **Self-Help Affinity Groups (SAGs)** were formed, which in itself shows the level of success the process was in mobilizing people. These SAGs also played a very important role in effective implementation of livelihood support activities for landless and women. "Strong community organization like this also resulted in many successful ventures being set in our village." shared by Jayshree, the VWC member of the Seri Nala Watershed and a Community Resource Person of the Community Managed Resource Centre (CMRC) in Narona. She added that one of the of the SAG members, whose name is Savitri, got support from this programme to buy a Noodle making machine. After the unfortunate loss of her husband, she availeda loan out of the portion (Rs.21,000) from the grant of Rs.10,00,000 provided by NABARD to take care of her three children and her old mother-in-law. This support came to her at the time when she was trying to raise her income post generating income from stitching.

Today (as per 2017 statistics), with the help of MYRADA, SHG members and NABARD, she sells nearly 55kg of noodles per day to the people in the village. This adds up to 50 quintals of noodles over the course of three months. At present her annual income through Noodle-making is Rs.50,000 per annum. There are lot of success stories similar to the case of Savitri who got support from this program.

Picture 6.3: Shivaparvati SHG meeting in Narona (Photographed by Sarvesh Chaturvedi, dated: 7 December 2018)

Due to the SAG's initiative during the watershed period in GunjBablad, there is awareness about the use of toilet. The number of people, who opt for open defecation in that region, has decreased. Thus, the

formation SAGs in this region is a tale of economic and social development.

Result

In the land use pattern, there was a 20% increase in the cropping intensity. The gross cropped area increased to 343.48 hectares due to increase in soil moisture content because of soil treatment activity. The net irrigated area increased to about 0.5%. It has been observed that there has been an increase in 12.59 hectares in net sown area post Watershed Development Project.

There was a good impact on the livestock population and fodder availability in the region. The number of mulching animals increased by 90 in number in the post development of watershed project. With increase in agriculture produce, adequate agricultural waste is available for animals.

At the end of the auditing, NABARD officially announced these two projects as **the 3rd best in the Karnataka state** and the **best performing project** in the Kalaburagi District.

It was evident that at the end of the project this participatory watershed approach was found to be an effective and viable tool for economical and sustainable management of dry lands. It has also been able to provide better livelihood security, improved education, health and above all uptake of rural poor especially landless and women.

FPO

Earlier, the farmers used to depend on rainwater for agriculture. Later, the advent of watershed activities helped in reducing the dependence on rainwater. With agricultural activity in place, thought was given in closing the loop for the farmers by giving them a place for selling their produce at prices acceptable to them. Hence, the FPO was started.

Mallikarjun who is the CEO of *Kshemalingeshwar* Agro Producer Company shared that it was 6 months left to the completion of the Seri Nala Watershed Project when S.D Kalyanshetty, the Program officer of MYRADA, Kalaburagi Project suggested him to work on opening a Farmer Producer Organization (FPO). Hence, he thought and agreed to do so. Soon, he got an opportunity to visit a FPO in a nearby village and underwent training for the same in Mysore.

Picture 7.1: Farmer Producer Organization (FPO) (Photographed by Sarvesh Chaturvedi, dated: 14 December 2018)

Mallikarjun stated that it was very easy for them to convince the members to register for the FPO because of the successful watershed project. After listening to its benefits and the long trust developed during watershed project helped in smooth registration process of 1,000 farmers. But, there are few farmers who are unaware about the benefits of joining a FPO as it not only gives loan for crop, but also gives loan for marriage, education, health and others.

Conclusion

With the success of the watershed project, NABARD is still involved in providing funds for the recharge pits at various places in Narona.

The *Kshemalingeshwar* Agro Producer Company is now looking forward to collect and store Tuar Dal from the farmers and they are waiting for prices to rise in order to sell it and gain profit that would contribute to the FPOs fund. They have also received fund from SFAC of about Rs.25,00,000 for increasing the market linkage and providing workshops to the members of the FPO.

Questions for Discussion

1. What are the ways to gain support from the villagers? How do you think the community got mobilized in this case?
2. What is the role of different stakeholders in this case?
3. How do you think farmer producer organization can add value to the cause of farmers?
4. What alternate solution can you provide to the problem that exists in the village?
5. For marginalized people who depend on agricultural and manual labour, what alternative source of income should be focused

on? Explain with pragmatic steps that can be taken.

6. What would you have suggested to Malleshappa, to tackle the problem of funding that he was facing initially?

Lessons Learnt

Through this case we were able to experience and develop analytical perspective of the rural landscape and the whole processes behind the intervention interventions. We learnt about watershed activity being a collective approach and acting as an effective and viable tool for economical and sustainable management of dry lands. We understood the importance of community mobilization and how the different strategies were useful in coping up with the challenges the farmers were facing. We also learnt how advent of farmer producing organization (FPO) has helped in countering the issues faced by the farmers in the region.

Course Positioning

This caselet can be used for the Rural Livelihood System as well as Rural Production System.

This caselet can be used to for lectures on 'Community mobilization', as this an apt example of how strengthen community can do wonder.

This caselet can be specifically be used to teach the course 'Watershed Management andSustainable Livelihoods', as the case basically shares the complete process of how the watershed project was awarded by NABARD as the third best watershed project of Karnataka state.

References

[1] Connecticut Government. Watershed Management - Overview. Department of Energy and Environmental Protection. Retrieved from https://www.ct.gov/deep/cwp/view.asp?a=2719&q=325622&depNav_GID=1654 , access: 10 January 2019

[2] Pollock, T. The Difference Between Structured, Unstructured and Semi-Structured Interviews. Retrieved fromhttps://www.oliverparks.com/blog-news/the-difference-between-structured-unstructured-amp-semi-structured-interviews , access: 10 January 2019

Annexures

Annexure 1: Review of Literature

[1] Watershed Management

While understanding the problems faced, there was an understanding developed on the implemented solutions like "Watershed Management", which is a term used to describe the process of implementing land use practices and water management practices to protect and improve the quality of the water and other natural resources within a watershed by managing the use of those land and water resources in a comprehensive manner"[11]. Watershed is "the area of land that drains or sheds water into a specific receiving waterbody, such as a lake or a river. As rainwater or melted snow runs downhill in the watershed, it collects and transports sediment and other materials and deposits them into the receiving waterbody"[12]. In a watershed, the flow of water is from the upper level to lower level. The water is stopped at various steps in order to reduce the speed of the flow. This aids in carrying out agriculture in the nearby areas.

[2] GunjBablad Watershed Project[13]:

The GunjBablad watershed project started in the year 2004-2005 to 2010-2011. It covered an area of 1077.33 hectare and is a part of three revenue villages such as Narona, GunjBablad and Sangolgi that lies between 17 31" to

[11] Information obtained from https://www.ct.gov/deep/cwp/view.asp?a=2719&q=325622&depNav_GID=1654 , dated: 10 January 2019

[12] Information obtained from https://www.ct.gov/deep/cwp/view.asp?a=2719&q=325622&depNav_GID=1654 , dated: 10 January 2019

[13] Information obtained from the Watershed Report

17.35" Latitude, and 76 41" to 76 44" Longitude in Aland taluk located in 42 Km North of Kalaburagi city. The watershed falling under North Transition Agro climatic zone is repeatedly affected by the failure of monsoon under and consequently leading to drought conditions. The watershed area with moderate rainfall of 750 mm with a depleted ground water table was chosen for Watershed Development Program through Integrated approach. The GunjBablad watershed Project covered 476.33 hectare of GunjBablad, 194 Hectare of Sangolgi and 207 hectares of Narona. 525 farmers were part of this project and majority of farmers were from the GunjBablad and Sangolgi, while a very few from the Narona.

[3] Seri Nala Watershed Programme

After the success of GunjBablad watershed project, the Seri Nala Watershed Programme was started in the year 2010-2011 to 2015-2016. This programme focused just on Narona as it covered 1259.37 hectares of the village. This region is also located in 42 km North of Kalaburgi city. This watershed falls under North transition Agro Climatic Zone.

[4] Semi-Structured Interviews

Semi-structured interviews[14], which were conducted in village Narona, are those types of interviews, in which, the interviewer (researcher) asks only a few predetermined questions while the rest of the questions are not planned.

On conducting interviews, there was an understanding developed on Community Managed Resource Centres. To get a deeper understanding, it was understood through MYRADA's website[15] that the first **Resource Centres (RCs)** emerged in MYRADA around 2002. These were conceived as centres providing free services. The CMRC in Narona was constituted by the name, *Asha Jyoti.*The vision of *Asha Jyoti*CMRC is to spread awareness and share information about education, information regarding society welfare, the financial exercises that one should ideally practise among **the Self-Help Affinity Group (SAG)** members, the individual families of the village and the individual person of the village.Along with this, *Asha Jyoti* also aims to make building for the CMRC by the year 2025 for the official purpose and to focus on increasing the employment opportunity for the youth of Narona

[14] Information obtained from https://www.oliverparks.com/blog-news/the-difference-between-structured-unstructured-amp-semi-structured-interviews , dated: 10 January 2019

[15] Information obtained from https://myrada.org/ , dated: 10 January 2019

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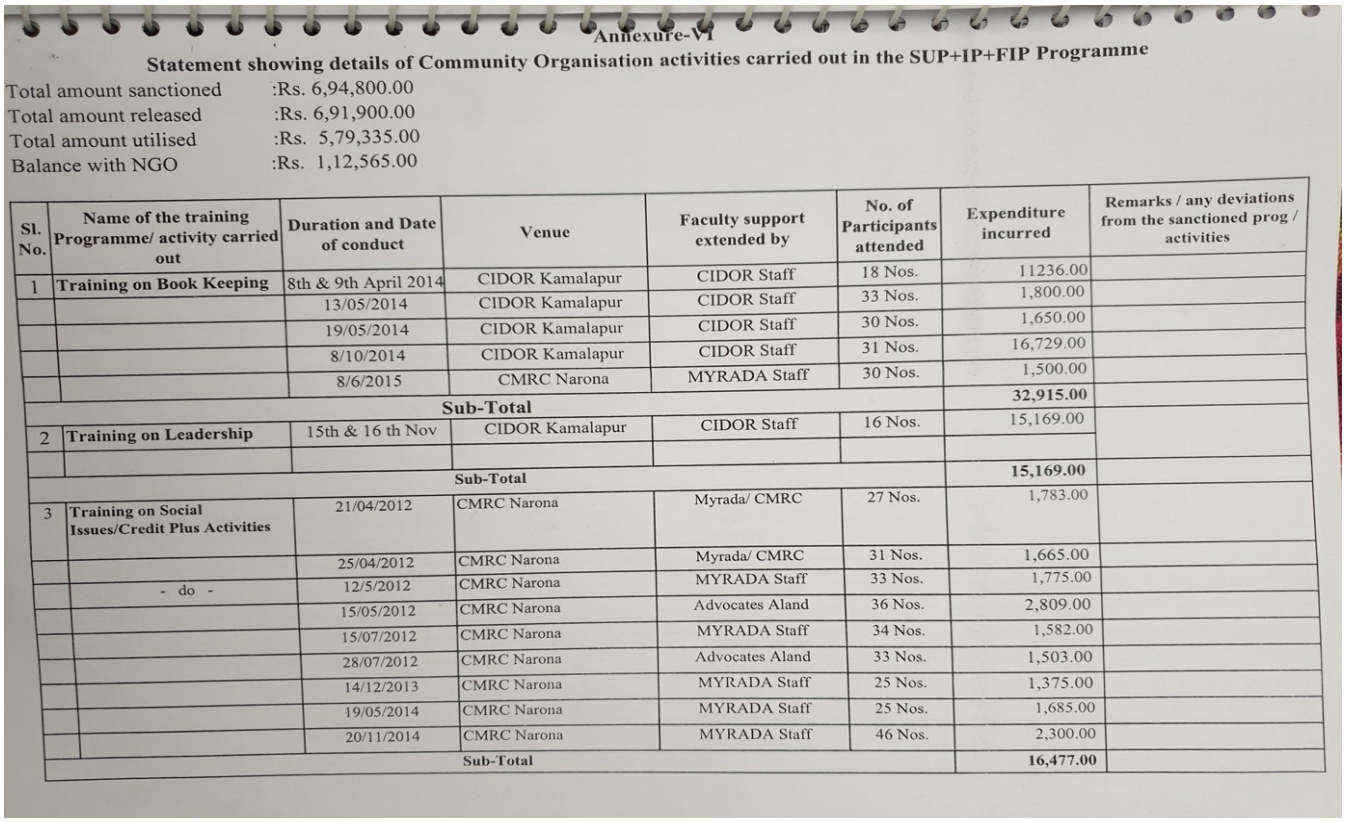
Annexure 2: Details of the Community Organization Activities and Money Sanctioned



Annexure-VI

Statement showing details of Community Organisation activities carried out in the SUP+IP+FIP Programme

Total amount sanctioned :Rs. 6,94,800.00
Total amount released :Rs. 6,91,900.00
Total amount utilised :Rs. 5,79,335.00
Balance with NGO :Rs. 1,12,565.00

Sl. No.	Name of the training Programme/ activity carried out	Duration and Date of conduct	Venue	Faculty support extended by	No. of Participants attended	Expenditure incurred	Remarks / any deviations from the sanctioned prog / activities
1	**Training on Book Keeping**	8th & 9th April 2014	CIDOR Kamalapur	CIDOR Staff	18 Nos.	11236.00	
		13/05/2014	CIDOR Kamalapur	CIDOR Staff	33 Nos.	1,800.00	
		19/05/2014	CIDOR Kamalapur	CIDOR Staff	30 Nos.	1,650.00	
		8/10/2014	CIDOR Kamalapur	CIDOR Staff	31 Nos.	16,729.00	
		8/6/2015	CMRC Narona	MYRADA Staff	30 Nos.	1,500.00	
			Sub-Total			**32,915.00**	
2	**Training on Leadership**	15th & 16 th Nov	CIDOR Kamalapur	CIDOR Staff	16 Nos.	15,169.00	
			Sub-Total			**15,169.00**	
3	**Training on Social Issues/Credit Plus Activities**	21/04/2012	CMRC Narona	Myrada/ CMRC	27 Nos.	1,783.00	
		25/04/2012	CMRC Narona	Myrada/ CMRC	31 Nos.	1,665.00	
	- do -	12/5/2012	CMRC Narona	MYRADA Staff	33 Nos.	1,775.00	
		15/05/2012	CMRC Narona	Advocates Aland	36 Nos.	2,809.00	
		15/07/2012	CMRC Narona	MYRADA Staff	34 Nos.	1,582.00	
		28/07/2012	CMRC Narona	Advocates Aland	33 Nos.	1,503.00	
		14/12/2013	CMRC Narona	MYRADA Staff	25 Nos.	1,375.00	
		19/05/2014	CMRC Narona	MYRADA Staff	25 Nos.	1,685.00	
		20/11/2014	CMRC Narona	MYRADA Staff	46 Nos.	2,300.00	
			Sub-Total			**16,477.00**	
4	**Enterpreneurship Development Programme for IG**	22/06/2011 to 23/06/2011	CMRC Narona	MYRADA/ CIDOR	45 Nos.	7,662.00	
		2/8/2012	CMRC Narona	MYRADA/ CIDOR	45 Nos.	8,830.00	
		25/09/2012 to 26/09/2012	KVK Gulbarga	KVK staff	45 Nos.	5,761.00	
		17/10/2012	CMRC Narona	MYRADA/ CIDOR	33 Nos.	1,617.00	
		20/12/2012	KVK Gulbarga	KVK staff	29 Nos.	4,075.00	
		25/07/2013	CMRC Narona	Other Dept. Staff	27 Nos.	1,617.00	
		29/05/2013	CMRC Narona	Other Dept. Staff	33 Nos.	1,850.00	
			Sub-Total			**28,412.00**	
5	**Training on tiny and village industries**	4/11/2011	CMRC Narona	MYRADA Staff	24 Nos.	1,926.00	
		24/05/2012	KVK Gulbarga	KVK Staff	23 Nos.	3,623.00	
		25/05/2012	KVK Gulbarga	KVK Staff	11 Nos.	1,350.00	
		19/10/2012	CMRC Narona	Department staff	28 Nos.	1,850.00	
		20/10/2012	CMRC Narona	Department staff	27 Nos.	2,134.00	
		17/12/2012	CMRC Narona	Department staff	19 Nos.	1,498.00	
		22/12/2012	CMRC Narona	CMRC Staff	20 Nos.	2,083.00	
		15/01/2013	CMRC Narona	MYRADA Staff	24 Nos.	4,660.00	
			Sub-Total			**19,124.00**	
6	**Gender Issues**	14/12/2013	CMRC Narona	MYRADA Staff	25 Nos.	1,124.00	
		16/12/2013	CMRC Narona	MYRADA Staff	27 Nos.	1,485.00	
		17/05/2014	CMRC Narona	Advocate Staff	36 Nos.	1,500.00	
		25/11/2014	CMRC Narona	Advocate Staff	45 Nos.	2,250.00	
			Sub-Total			**6,359.00**	

7	**Conflict Resolution and decision making**	3/11/2010	CMRC Narona	CMRC	25 Nos.	1,750.00	
		5/7/2011	CMRC Narona	CMRC	19 Nos.	1298.00	
		12/5/2012	CMRC Narona	MYRADA Staff	33 Nos.	1,775.00	
		14/05/2012	CMRC Narona	MYRADA Staff	34 Nos.	1,345.00	
		22/06/2012	MYRADA Kamalapur	MYRADA Staff	23 Nos.	9,045.00	
		24/07/2012	CMRC Narona	MYRADA Staff	41 Nos.	1,845.00	
		22 & 23rd May 2013	CMRC Narona	MYRADA Staff	15 Nos.	1,000.00	
		23/05/2013	CMRC Narona	MYRADA Staff	30 Nos.	1,500.00	
			Sub-Total			**20,558.00**	
8	**Formation & Strngthening of farmers Club**	6/12/2011	CMRC Narona	MYRADA/CIDOR staff	25 Nos.	1,592.00	
		28/04/2012	CMRC Narona	MYRADA Staff	14 Nos.	1,750.00	
		4/5/2012	CMRC Narona	MYRADA/CIDOR staff	50 Nos.	2,250.00	
		7/12/2012	CMRC Narona	MYRADA Staff	26 Nos.	3,957.00	
		9/1/2013	CMRC Narona	MYRADA Staff	25 Nos.	2,060.00	
		26/08/2014	CMRC Narona	MYRADA Staff	62 Nos.	5,070.00	
		16/09/2014	CMRC Narona	MYRADA Staff	46 Nos.	4,329.00	
			Sub-Total			**21,008.00**	
9	**Awareness:**						
a	**Legal Awareness Compaign**	22/05/2013	CMRC Narona	Advocate Staff	26 Nos.	1,300.00	
		21/01/2015	CMRC Narona	Advocate Staff	50 Nos.	4,970.00	
			Sub-Total			**6,270.00**	
b	**Health Camp to Community**	1/5/2011	Samudaya Bhavan, Narona	Local Doctors	300 Nos.	5,535.00	General health check & specially for ladies
		21/07/2013	Eye camp office, Narona	Eye specialists Gulbarga	118 Nos.	5,372.00	
		18/03/2014	Bharuka Hospital Gulbarga	Eye specialists Gulbarga	17 Nos.	3,850.00	Free check up and Medicine bill
			Sub-Total			**14,757.00**	
c	**Health Camp on Livestock**	1/11/2010	Veternary Hospital Narona	Dept. Doctors	150 Nos.	4,476.00	
		18/06/2012	Veternary Hospital Narona	Dept. Doctors	200 Nos.	4,466.00	
		9/3/2013	Veternary Hospital Narona	Dept. Doctors	236 Nos.	9,750.00	
		25/05/2014	Veternary Hospital Narona	Dept. Doctors	117 Nos.	10,000.00	

ANNEXURE - V

Details of activities implemented under Livilihood Support in the SUP+IP+FIP Programme

Total amount sanctioned : Rs. 13,21,600.00
Total amount released : Rs. 13,15,300.00
Total amount utlised : Rs. 13,19,500.00
Balance with VWC : Rs. -4200.00

Sl. No	Action Carried Out	No. & benificiaries covered	Mode of convenyace of assistance		Revolving fund assistance per beneficiary	Total revolving fund assistance provided	Remarks/ any deviations from sanctioned prog/activities
			Directly to individual	Through SHG			
1	Petty Buisness	19		SHG	1 Nos. x 5,000/- 3 Nos. x 7,500/- 3 Nos. x 8,000/- 4 Nos. x 8500/- 8 Nos. x 10,000/-	5000.00 22,500.00 24,000.00 34,000.00 80,000.00	As per sanctioned budget for support to Ox and poultry farm unit, these 2 items are changed in VWC meeting and the same amount increased in the number of milch animals beneficiaries
2	Shavige Machine (Vermicelli Unit)	1		SHG	1 Nos. x 21,000/-	21,000.00	
				SHG	7 Nos. x 10000/-		
3	Chilli Ponding Machine	3		SHG	1 Nos. x 30,000/- 2 Nos. x 20,000/-	30,000.00 40,000.00	
4	Support to Artisan Skills	3		SHG	3 Nos. x 10,000/-	30,000.00	
5	Milch Animal	54		SHG	6 Nos x 7500/- 5 Nos x 10000/- 43 Nos x 15000/-	45,000.00 50,000.00 645,000.00	
6	Sheep/Goat(3+1)	15		SHG	15 Nos. x 10,000/-	150,000.00	
7	Kitchen Garden	1		SHG	1 Nos. x 10,000/-	10,000.00	
8	Welding Machine	1		SHG	1 Nos. x 10,000/-	10,000.00	
9	Tailoring Machine/Embroidery	9		SHG	1 Nos. x 10,000/- 1 Nos. x 7,500/- 7 Nos. x 5,000/-	10,000.00 7500.00 35,000.00	
10	Cloth Shop	5		SHG	5 Nos x 10000/-	50,000.00	
11	Pickles Preparation Unit	1		SHG	1 Nos. x 10,000/-	10,000.00	
12	Lady Animator(SUP)	1			7 Months x 1500/-	10,500.00	
					TOTAL:	**13,19,500.00**	

Contributors

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Sarvesh Chaturvedi is an MBA-Rural Management Graduate from Xavier Institute of Management Bhubaneswar. He has done his B. Tech in the field of Electronics Engineering from Bharti Vidhyapeeth College of Engineering, Pune. He has worked as a research intern at UNDP on a project to provide intervention to the problem of tribal community in Dhar District, Madhya Pradesh, India. His Interest areas include Environment and Forest, Rural Development, Water Resource and Skill Development, Food Security, Sustainable Management, Community Mobilization and Capacity Building.

Caselet: Revamping - from Water Logging Area to Water Conservation Area

An Experience at Sanatan Dharma College, Ambala Cantt, Haryana

Ms. Zeenat Madan, Assistant Professor of Zoology
Sanatan Dharma College, Ambala Cantt., Haryana

"Water conservation is the practice of using water efficiently to reduce unnecessary water usage. According to Fresh Water Watch, water conservation is important because fresh clean water is a limited resource, as well as, costly one. As homeowner you probably are already aware of the cost of the water. Conservation of this natural resource is critical for the environment – and our wallets."

Brief background of the City and the Institution

District Ambala of Haryana has total geographical area of 1574 sq.km. Administratively, the district is controlled by Ambala division. It is divided into three tehsils namely Ambala, Barara and Naraingarh, and sub-divided into six development blocks namely Ambala I, Ambala II Barara, Shahzadpur, Naraingarh, and Saha. The district area falls in Yamuna sub-basin of Ganga basin, and is mainly drained by the river Tangri, Beghna and Markanda.

Sanatan Dharma College, Ambala Cantt (NAAC Accredited Grade 'A+' with CGPA 3.51 in the Third Cycle College with Potential for Excellence –UGC, New Delhi) finds its roots in the year 1948 in this city after the migration from Pakistan, the place of its establishment. As an educational institute it has been serving the city and the nation for last 72 years. The college is spread over 14.5 acres. The college has a big play ground. It has large cover of greenery with lush green lawns and shady trees in its campus. Every year more and more trees are planted to maintain the pristine environment of the college. The college falls right in the middle of the city making it accessible by all modes of transportation. The college not only caters to the educational needs of the city but also does many social works for the upliftment of the society that surrounds it. Such a hugely sprawled college has big needs to be addressed to and water is the most important one.

Ambala Cantt. has been facing the water logging problem since long. In rainy season, sometimes, the whole city gets choked with water. On the other hand the underground water level was also depleting. According to a news on July 1, 2019, by Times of India "*In Ambala, the groundwater is found on an average ranging from 250-300 feet. In some areas where water consumption is high, every year we have to install one or two pipes of 10-feet length in the tubewells as the groundwater depletes during the summers due to increased demand and sowing of paddy.*"[1] That means the water which was being wasted and was flowing unchecked could have been used to recharge the underground water level.

Challenge

Since the whole city was facing the problem of water logging, Sanatan Dharma College, Ambala Cantt. was not an exception. In rainy season problem becomes worse for the college as the college is situated right in the middle of the city. In absence of any water conservation methods water would clog every nook and corner of the college. As the college has state of the art play ground, it would also get submerged in water and becomes useless for many days. The college has beautiful lush green lawns covered with dense lines of exotic tress. But due to water logging everything would get wasted and the college has to bear huge losses besides losing the scenic beauty of the college campus. The college is divided into four building blocks and all are interlinked. But no measures were adopted for water conservation and harvesting. But now it was high time when something was to be done as an example for others also.

As the college usually has strength of approx 3000 students on the rolls, the management of lavatories for them was a mounting task before the college administration. With such a huge strength of students, the proper and adequate supply of water to lavatories was also to be ensured. Other than this water was needed for drinking, in the laboratories, and to maintain the gardens and greenery of the college and construction work also. Earlier the college had its own bore well pump to cater to the needs of water in the college at different levels. But due to continuous lowering of water table, every year it had to be dug more to ensure continuous water supply. Water

supply had become one of the major issues for the college over the years. And it became one of the daunting tasks. This was the scenario and situation of water in the college.

In an educational institute sprawled in more than 10 acres much could have been done to tackle the problem of water logging and paradoxically problem of water scarcity. For this a proper plan was needed and in the wake of the fact that many changes in building structure were not possible. So the administration has to move aggressively to come out with a miraculous plan so that the college could present an example in the city also as to how with the limited resources we can utilize the wasted water and overcome the problem of water logging in the college.

Response

In a report **(http://cgwb.gov.in/District_Profile/Haryana/Ambala.pdf)** published by **Central Ground Water Board, North Western Region, Chandigarh**, it was recommended that:

- There are depressions in and around Ambala in which rainwater is collected. This storage can be used for artificial recharge by diverting the water to deep water level areas. In order to arrest the declining trend of water levels in the district, the rooftop rainwater harvesting technology should be adopted and recharge structures may also be constructed in depression areas where water gets accumulated during rainy season. This will help in enhancing the recharge to ground water reservoir.
- The construction of roof top rainwater harvesting structures should be made mandatory in building bye-laws, which will help in checking the falling water level trend in the towns of water level depleting areas.

Moving slowly towards the solution of the problem, a scientific approach was adopted under the guidance of worthy Principal of the college, **Dr. Rajinder Singh. The NSS (National Service Scheme) also became active by holding many seminars and talks and working with NGOs which were working for water in a hope that some more solutions would come out.**

Actions Taken to Overcome the Problem

- The rooftops were remapped and renovated so that the spill over water in the rainy season could be tapped in.
- Rooftops were revamped and interlinked with one another to make space for the water pipes for water harvesting.
- The water tanks on the terrace were also connected with pipes so that the overflow water should not go wasted rather it is also collected in the water recharging units.
- As every block has a garden attached to it so water recharging units were installed in every garden.
- All the water pipes which would tap rain water were connected to the water tanks.
- The play ground was also revamped by constructing drains on the edges and the drains connected to the water tanks.
- More than 15 water recharging unites are functional now in the college campus.
- Water friendly taps were installed to check water leakage.

Current Water Situation in the College

- The problem of water logging is now a history unless there is torrential and incessant rain.
- The college has 10 water recharging units with the capacity of 25000 liters each in the college campus.
- The problem of bore well is now over as the water level is improved with the installation of water recharging units.
- **The college has state of art water harvesting system.**

Conclusion

The college has adopted five villages under **Unnat Bharat Abhiyan** and through rallies and talks with the residents of these villages the model of water conservation used by the college is publicized in a hope that people will also turn to these practices to save water.

Now the college is working on the plan for treatment of grey waste water in order to conserve water efficiently and make the campus **Zero Water Wastage Campus**.

Lessons Learnt

- Never follow the theory of why should I do this first? Be first to do something and the world will follow you.
- Initially people around you may consider you lunatic but we need to be crazy to bring about the changes in the society.
- Not slow but steady work will reflect huge results.
- A vision and guidance is always required.

Questions for Reflection

- Who are the right persons to be contacted for meticulous results?
- What will be the possible challenges for taking such a marathon task?
- Is the college with its limited financial resources capable of bringing about such a great change, infrastructure wise and perception wise?
- If something goes wrong with the parent plan can plan B of some kind be prepared?

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[1](https://timesofindia.indiatimes.com/city/gurgaon/haryana-situation-of-groundwater-peculiar-in-ambala/articleshow/70028864.cms).


1


2

1*,2,3. Pipes connected to roof top in every building to harvest water*
4. Pipes connected to water tanks on terrace to collect the water overflown

Contributor

Ms. Zeenat Madan is an Assistant Professor of Zoology in Sanatan Dharma College, Ambala Cantt, Haryana, India. She has completed her studies from Punjab Agricultural University, Ludhiana. She has completed 16 years of teaching experience in the area of Zoology and Environment. She has three years of experience working as NSS Programme Officer. She is District Nodal Officer of NSS, District Ambala. Her areas of interest are environment conservation and community service. She has done tremendous work related to social service and rural upliftment. She has been working on various projects like Solid Waste Management, Water Conservation and Energy Conservation in the college. She can be reached at zeenatmadan.80@gmail.com.

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