Effectiveness of public agricultural extension services in Tripura state of North-East India

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ABSTRACT

This paper analyses the effectiveness of the public agricultural extension services of the department of agriculture in Tripura state. Extension effectiveness was measured in three levels (input, process and outcome) by using 20 indicators. Information on organizational variables was collected from all the four District Head Offices (Office of the Deputy Director of Agriculture) of the Department of Agriculture in Tripura state. A structured interview schedule was used to collect data from the randomly selected 80 clienteles (farmers) and 80 extension personnel. The result shows that the total expenditure intensity was ₹ 3831.13(USD 68.11)/ha/year and expenditure intensity on extension activity was ₹ 2260.46 (USD 40.18)/ha/year, the technical manpower: cultivator ratio was very high i.e. 1: 1218 and clientele contact intensity was only 1 hr. 45 min./clientele/year. Whereas, extension service commitment and client accountability of the extension personnel was also higher but organizational commitment, job satisfaction, job performance, job competence index of the extension personnel was low. All the clientele were willing to pay nominally for extension services and the overall clientele satisfaction was 72.45. Based on the results of the study it is recommended to increase the technical manpower in the department and also increase collaboration with Non-Government Organizations NGOs), Self Help Groups (SHGs) and private organizations for extension programme implementation.

Keywords: Clientele, effectiveness, extension personnel, extension services, agriculture, India

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Agricultural extension was treated essentially as a public service and predominantly public sector in the fray for technology development and transfer, the focus was on spreading the reach of extension to all parts of the country through more extension staff and a large number of programmes. In India, the Department of Agriculture (DoA) in all the States and Union Territories is only the institution available throughout the country for farmers to consult for information, though its role

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in delivering information in non-food grain crops is limited (Sulaiman, 2003). Commodity Boards (Rubber, Tea, Coffee, Spices, Tobacco and Coconut *etc.*) provide a large number of services, including extension services to the farmers. The field extension activities of the Directorate of Extension of the State Agricultural Universities (SAUs), agricultural colleges and research stations of SAU/ Central Agricultural University (CAU)/ Indian Council of Agricultural Research (ICAR) are restricted to a few villages around their Institutes' location. The ICAR has established Krishi Vigyan Kendra (KVK) in each district in the country which is an apex institution for research based extension activity. There are some private organizations and Non-Government Organizations (NGOs) also used to perform extension activities in limited area. Recommendation of planning commission of India's working group on agricultural extension for XI five year plan (2007-2012) states that the agricultural growth is stagnating and sluggish (PC, GOI, 2007). In India estimation indicated that 60 per cent of farmers do not access any source of information for advanced agricultural technologies resulting in huge adoption gap (NSSO, 2005). In China in 2006, there was 7,87,000 extension staff in the whole public extension system, including 5,60,000 technicians, serving about 6,37,000 villages. That is, one extension staff per 0.81 villages or per 283 farm households. Whereas, in India out of 1,43,863 positions in Department of Agriculture (DoA) only 91,288 posts are filled (Chandragowda, 2011), while there are about 6,38,596 villages and existing each extension officer is in-charge of seven villages (Mkhize and Zhou, 2012). The performance of the DoA is adversely affected by inadequate number of technical manpower, depleting operational support and poor technical background of the majority of its employees but it is still a primary source of information and agro-advisory for the majority of the farmers though the satisfaction with the services varies widely.

Database and Methodology

The research study was conducted in all the four districts of Tripura *i.e.* West Tripura district, South Tripura district, North Tripura district and Dhalai district during 2012. As the Department of Agriculture (DoA) is the prime public organization doing maximum extension work because of larger area coverage and more number of extension personnel, DoA was selected for the study. Two villages, one nearest to the Office of Deputy Director of Agriculture (DDA Office) and another farthest from the DDA office were selected from each district and from each village equal number of clientele were selected. From each village 10 numbers of clientele, thus total 80 farmers from four districts were selected randomly as the ultimate sample unit of the study. Similarly, equal number of AOs and VLWs (10 each) were selected, thus total of 80 (40 AOs and 40 VLWs) were selected randomly from all the four districts.

For identifying the extension organization effectiveness indicators at different levels like input level, extension activity level, organizational level and practice change level have been identified by referring Seepersad and Henderson (1984), Sulaiman and Sadamate (2000), Saravanan (2003) and Saravanan and Veerabhadraiah (2007). Secondary data were collected from all the District Head Office of the Deputy Director of Agriculture.

Table 1: Effectiveness indicators of the public agricultural extension organization in Tripura state of North-East India

Sl. No.	Organizational indicators	Score
1.	Total expenditure intensity (₹/ ha. /year) (salary +expenditure on extension activities)	3831.13 (USD 68.11)
2.	Expenditure intensity on extension activities (₹/ha. /year)	2260.46 (USD 40.18)
3.	Extension activity Extension agency –Frequency, Adequacy, Usefulness (FAU) index	83.06
4.	Clientele contact intensity (hr/ clientele/ year)	1.75
5.	Technical manpower: cultivator ratio	1:1218
6.	Organizational climate index	59.71
7.	Guidance and supervision index	54.43
8.	Facilities and resources index	44.00
9.	Communication index	51.75

Table 2: Effectiveness indicators related to clientele of the public agricultural extension organization in Tripura state of North-East India

(n_1=80)

Sl. No.	Clientele indicators	Score
1.	Extension service commitment of clientele	91.81
2.	Willingness to pay for extension service	
2.a.	Percentage of clientele	100
2.b.	Rupees (₹) willing to pay index	57.37 (USD1.02)
3.	Extension service relevancy index	61.50
4.	Extension service quality index	71.08
5.	Extension service usefulness index	74.14
6.	Extension agency customer service index	83.07

n_1=Number of clientele

Table 3: Effectiveness indicators related to the extension personnel of the public agricultural extension organization in Tripura state of North-East India

(n_2=80)

Sl. No.	Indicators related to the extension personnel	Score
1.	Organizational commitment of extension personnel	60.96
2.	Client accountability of extension personnel	80.69
3.	Job satisfaction index	42.89
4.	Job performance index	58.77
5.	Job competence index	69.83

n_2= Number of extension personnel

Table 4: Effectiveness indicators score of the public agricultural extension organization in Tripura state of North-East India

n=160 (n_1=80, n_2=80, n= n_{1+} n_2)

Sl. No.	Effectiveness indicators	Score
I. Input level		
1.	Total expenditure intensity (₹/ ha./year) (salary +expenditure on extension activities)	3831.13 (USD 68.11)
2.	Expenditure intensity on extension activities (₹/ha./year)	2260.46 (USD 40.18)
3.	Clientele contact intensity (hr/ clientele/year)	1.75
4.	Technical manpower: cultivator ratio	1:1218
II. Process level		
1.	Extension activity	83.06
	Extension agency –Frequency, Adequacy, Usefulness (FAU) index	
2.	Involvement of clientele and extension personnel	
2.1	Extension service commitment of clientele	91.81
2.2	Organizational commitment of extension personnel	60.96
2.3	Client accountability of extension personnel	80.69
	Involvement index	77.82
3	Reaction level	
3.1	Willingness to pay for extension service	
3.1.1	Percentage of clientele	100
3.1.2	₹	57.37 (USD 1.02)
3.2	Job satisfaction	42.89
	Reaction level index	66.75
4	Extension personnel performance level	
4.1	Job performance index	58.77
4.2	Job competence index	69.83
	Extension personnel performance index	64.30
5	Organizational performance level	
5.1	Organizational climate index	59.71
5.2	Guidance and supervision index	54.43
5.3	Facilities and resources index	44.00
5.4	Communication index	51.75
	Organizational performance index	52.47
	Overall process level index	68.88
III. Outcome level		
	Client satisfaction level	
1	Extension service relevancy index	61.50
2	Extension service quality index	71.08
3	Extension service usefulness index	74.14
4	Extension agency customer service index	83.07
	Client satisfaction index/ Outcome level index	72.45

Results and Discussion

The total expenditure intensity including salary and expenditure on extension was ₹ 3831.13/ ha/year (USD 68.11). The total expenditure includes salary and extension expenditure both. The expenditure intensity on extension activities was ₹ 2260.46/ha./year (USD 40.18). For disseminating new technology to the farming community and to improve the effectiveness of the department, the department has to concentrate more on extension activities than other work. The clientele contact intensity was very less *i.e.* 1.75 hr/clientele/year (1 hr. 45 minutes/clientele/year.). It is due to the fact that majority of the extension personnel used to be engaged with official work rather than extension work. Moreover the high technical manpower, cultivator ratio may be another cause of less clientele contact intensity.

The technical manpower and cultivators ratio was very high, 1: 1218 *i.e.* one extension personnel in contact with 1218 clientele. This is due to the fact that there was limited manpower in DoA, the last recruitment of Village Level Workers (VLWs) was done during 2006 and after that there was no recruitment at all and a considerable number of VLWs were getting retired every year. The Extension Agency Frequency- Adequacy- Usefulness index was 83.06 because majority of the clientele, VLWs and Agriculture Officers (AOs) of the department were very faithful source of information. Extension service commitment index of the clientele was 91.81 because the clientele had expressed high level of extension service commitment. The high level of commitment is because of high accountability of the public extension personnel to the clientele, need based and timely services, input supply, communication of recent technologies and committed services by the extension personnel.

The organizational commitment index of extension personnel was 60.96. It is due to the fact that a majority of the AOs and VLWs had medium level of organizational commitment. Most of the AOs and VLWs were satisfied with most of the job aspects like job security, job status and prestige in the department, work done by them, help, guidance and encouragement from supervisors etc. The client accountability index of the extension personnel was 80.69. The cause is that majority of the AOs had medium and VLWs had high accountability to clientele. Most of the projects have estimated target area and population; an annual plan used to be prepared by AO every year indicating the area and activities and majority of the VLWs used to work in the same locality they belonged. They were determined to work for the department to make every project successful. Moreover getting praise, recognition and awards for good work from the higher officials are also the reasons for their high job responsibilities and clientele accountability.

100 per cent of the clientele were willing to pay for the extension service but the pay range depends on the farm size. The clientele with more land holding were willing to pay more money per season than the clientele with less land holding (on an average marginal land holding farmers were willing to pay ₹ 25.89 per season; followed by small land holding farmers ₹ 35.50 per season, medium land holding farmers ₹ 42.14 per season and large land holding farmers ₹ 80 per season). This is because the clientele thought that if they pay for the service, there would not be any delay in providing necessary information on time and the quality of information service provided also might be improved.

The clientele wanted to pay for plant protection for reducing the yield loss due to pest and disease attack. They also wanted to get market information to harvest the crop when the market price for a particular crop is high. Knowledge about credit services helps the farmers to borrow money during crisis. They also wanted to pay for the recent cultivation practices of food and vegetable crops so that the production would be increased. The job satisfaction index of the extension personnel was 42.89 which was very low. Most of the AOs had medium and low level of job satisfaction because of lack of residential facility, lack of promotional policy, lack of freedom for flexibility in work, less scope to prove merit and excellence, low salary *etc.* The VLWs had expressed high job satisfaction, which is due to the fact that most of the VLWs were satisfied with job security, status and prestige as a person in the department, type of work done by them, opportunity to work with team spirit and self-development etc.

The job performance index of extension personnel was 58.77, because AOs and had VLWs expressed low to medium level of job performance due to limited

activities in the areas of planning, supply and service, supervision, co-operation, monitoring and evaluation. The job competence index of the extension personnel was 69.83 as most of the AOs had medium to low level of job competence. The reason is lack of knowledge of recent technology, lack of guidance, lack of communication ability, lack of opportunity for self-development, lack of creative thinking and initiation. VLWs had medium to high level of job competence as most of them do not have any subordinates and every work was done by themselves only, having more experience as working in same village for long period and they can also communicate easily with the farmers as they belongs to the same locality.

The organizational climate index of extension personnel was 59.71 because most of the AOs had expressed medium to high level of favourable organizational climate which is mainly due to friendliness, interpersonal and mutual trust, co-operation among colleagues, recognition for good work, flexibility in team work *etc.* within the department. Majority of the VLWs had expressed less favourable organizational climate, which is due to strict rules, procedures, policies and practices of the department. Moreover scope of reward and recognition for leadership and good work was limited in the department. The guidance and supervision index was 54.43, facilities and resources index was 44 and the communication index of the department was 51.75 as the AOs had expressed medium to low level of guidance and supervision. This is due to the fact that the supervisory officials were less motivated and do not communicate properly with the AOs. Another reason is status difference between the two official positions. The VLWs were also expressed low level of guidance and supervision.

The AOs had expressed high to medium level of satisfaction with facilities and resources as majority of them were satisfied with input supplies, availability of demonstration equipment, official supplies and storage facility *etc.* Whereas most of the VLWs had expressed low satisfaction with facilities and resources because majority of them were not satisfied with the supply procedure of input, transportation or conveyance facilities, repairs and maintenance *etc.* of the department. The AOs of the department had expressed medium satisfaction with the communication process of the higher officials. The reason is that there are irregularities in receiving timely information or sometimes delay in providing required advice.

The VLWs had expressed medium to low level of satisfaction with the communication process which is due to not receiving timely and required replies from higher ups, methods of communication employed by higher ups, clear and complete message on time from the higher ups. The overall clientele satisfaction index was 72.45. This is because of medium relevancy of extension service, medium to high level of quality extension service, medium level of usefulness of extension service and medium to high level of customer service of the department.

Conclusion

The findings of the study indicated that the organization's total expenditure intensity and expenditure intensity on extension activity was high, extension agency-frequency, adequacy, usefulness index was medium, technical manpower-cultivators' ratio was very high and the clientele contact intensity was very low, organizational climate, guidance and supervision, facilities and resources and communication index was low. Extension service commitment of the clientele was high, all the clientele were ready to pay for quality extension services, extension service relevancy, quality, usefulness and customer service index was medium for clientele. The extension personnel organizational commitment was low but client accountability was high. Whereas, job satisfaction, job performance and job competence of the extension personnel was low. So, it is recommended to increase the manpower to make the organization more effective and the public extension personnel need to concentrate on an optimum number of farmers for effective delivery, guidance and supervision, communication of messages from the higher officials in time which also improves flexibility. The number of clientele per extension personnel can be reduced to increase the client accountability and commitment. Performance based incentive for extension personnel need to be introduced for increasing organizational

commitment and clientele accountability. It is important to strengthen the partnership between NGOs, SHGs and private organization which may help in smooth functioning of the public organization. The department may introduce clientele specific information delivery system to provide need based extension services. Rewards and incentives may be introduced based on performance of the extension personnel. Availability of facilities and resources should be encouraged according to the need of the extension personnel.

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