

CHAPTER SEVEN

SUMMARY AND CONCLUSION

Training and Visit system of extension is the latest and largest extension network. It spreads over almost in all the States of India. The present study was an attempt to assess the impact and performance of that particular extension (T and V) system introduced in North Bengal in late seventies. An analysis has been made on the exposure of the farmers to information and extension, their present level of knowledge about improved cultivation practices of certain crops and overall attitude towards the T and V system. The study attempts to evaluate the credibility of the T and V system in terms of its efficiency in making linkage between extension and farming system. It also traces the impediments which affect the very objectives of the T and V system of agricultural extension.

The present study was conducted in two northern districts of West Bengal namely Jalpaiguri and Cooch-Bihar. Two Blocks from each district Viz. Alipurduar I and Alipurduar II from Jalpaiguri, and Cooch-Bihar I and Cooch-Bihar II from Cooch-Bihar district were selected purposively. Fourteen villages from Alipurduar sub-division of the Jalpaiguri district and eleven villages from Cooch Bihar sub-division of the Cooch Bihar district were selected randomly. In total 500 sample farmers (279 from the Jalpaiguri district and 221 from the Cooch Bihar district) were selected randomly as the respondents of present enquiry. The selection of sample was based on multi-stage stratified random sampling with village as the primary unit and farmer as the ultimate unit of observation. Field data were collected through personal interview with the help of a structured interview schedule. Agricultural year 1995 - 96 was taken into consideration as the reference period of the study. The fieldwork was carried out

during late 1995 to early 1997. In the following sections some salient findings of the study have been presented.

Since early fifties, like in other States, several agricultural extension systems were introduced in West Bengal in succession. But none of them succeeded in eliciting desired result. In 1977, the Training and Visit system, a particular form of extension originally developed by Daniel Benor, was introduced. Under this system, a Village Extension Worker (VEW) is required to work intensively with a group of 800-1200 farm families. A Village Extension Worker functions under the control of Agricultural Development Officer. Extension functionaries have exclusive responsibility in rendering agricultural extension services to the farmers. A special feature of the system is, there is an arrangement of systematic training of extension functionaries by Subject Matter Specialists (SMS) fortnightly and on a fixed day. Monitoring and concurred evaluation of extension programmes, linkage with research and coordination with supporting agencies are some other unique features of the T and V system.

For administrative control, there is a single line of command from the Director of Agriculture to the VEW. In each district at Sub-division and Block levels Agricultural Development Officer is suppose to supervise the activities of village level extension functionaries viz. *Krishi Prajukti Sahayak* (KPS). The Director of Agricultural is the overall in charge of the extension system as well as of the department concerned.

The present study was designed to enquire about the efficiency of the T and V system of extension in influencing (i) the level of adoption of improved farm practices, (ii) the level of knowledge about latest and new technologies, and farm management and (iii) information need of the farmers. The attitude of the farmers towards this extension system was also examined in order to assess the role of KPS in diffusion of agricultural innovations. The socio-economic and cultural background of the farmers facilitating or obstructing the very aim of the

Training and Visit system was also studied. More specifically, efforts were made to examine the credibility of the T and V system of agricultural extension in transforming traditional agricultural practices in two districts of North Bengal.

Chapter two gives an account of findings of some earlier studies related to diffusion of agricultural innovations through T and V system of extension. From the review of earlier studies it appears that re-organized agricultural extension system was designed to provide adequate information and advice to farmers in adopting new technologies, mitigating personal agricultural problems, and feed back to extension officers and researchers. However, in some cases lack of effective linkage between the research station and extension had been noticed. The research-extension linkages were promoted through training of extension workers where they were provided with up to-date information on latest technologies.

It has been observed that the resource position of the common farmers often stood in the way for better / appropriate adoption of new technologies. The extension services were rendered in order to motivate them in adopting all the recommended practices so far kept aside. The re-organized extension system there fore gives more emphasis to the spread of low cost technologies. The T and V system is currently serving to the larger segment of small and marginal farmers, and who are now well exposed to various new agricultural information. The programme is however not free from certain shortcomings. The most serious one of which is the irregular visits to farmers by VLWs. Inadequate mobility of extension workers leads to poor extension contact between functionaries and farmers.

Chapter three provides a preliminary idea about the overall agricultural situation of two districts under study and the infrastructure facilities available to the sample villages. The methodology used in this study was also discussed in this chapter.

The cultivable area in the study districts was covered principally by agricultural crops. In addition, there were forests and tea plantations. Numerically there were proportionally more small and marginal farmers among the farming communities. An important ecological character of the area was its high rainfall and which was annually more than 3000 mm. The cropping intensity was more than 200 per cent. The special cropping feature was the dominance of jute cultivation as a cash crop. The artificial irrigation was available only in about 20 per cent of the cultivated area. The Scheduled Castes and Scheduled Tribes constituted more than fifty per cent of total population and the overall literacy rate was about 37 per cent.

For making a significant linkage between extension services and research station, there are seven agricultural research institutions/ centres in the area. This apart the farmers also enjoy the agricultural marketing facilities and the services of three cold storages. Agricultural extension network is available in all the Blocks of the area and there are more than 500 fertilizer and pesticide sales corners. The Agricultural University located at Cooch-Bihar district has made a significant dent in improving agricultural education, research and extension in North Bengal.

The economy of the study area is largely dependent on agriculture. In improving the agriculture of the region, the facility of irrigation and electricity is not available as per need of the farmers. To meet the credit requirements of the farmers, Banks and Co-operatives are not appreciably available in the villages. Health and education services are there at the doorstep but are quite meagre in terms of actual requirement. Development of metalled roads is essential for transporting farm produces. But more than 80 per cent of the villages are connected with *Kachha* (unmetalled) roads. On the whole, the requisite infra-structural facilities are not available in the villages of the study area.

Despite limited facilities available to them, the farmers of North Bengal have grown all the major crops. During 1984-85 to 1995-96, there has been substantial increase in the average yield of the main crops like HYV jute, Aus paddy, HYV Potato and Mustard. Along with the introduction of intensive agricultural extension, the productivity of HYV Aus paddy has gone up to 3.98 tones per hectare in 1995-96 from 2.10 tones in 1984-85. The corresponding increase in the case of wheat was from 1.49 tones to 1.56 tones. The yield of potato has also increased from 8.21 tones to 22.47 tones. Such an increase in productivity of certain important crops has taken place may be due to farmers favourable attitude towards new agricultural technologies and their adoption.

As far as the socio-economic background of the respondents is concerned the majority of the respondents were young and belonging to the age group of 30 to 45 years. Of the total sample about 20 per cent were illiterate and only about eight per cent were graduates. About 85 per cent of the respondents used to live in small and medium sized families, and only 15 per cent had large family. Majority (51.80%) of the respondents had the annual income below Rs. 15000/-, of which 47.60 per cent were belonging to the income bracket of Rs. 6401 to 15000/-. Only a small section (10.20%) had earning above Rs. 40,000. In the sphere of social participation about 18 per cent of the farmers had some kind of participation to *Krishi Urrnayan Samabaya Samiti* (agricultural development co-operative society) and about three per cent were directly associated with Gram-Panchayat. The principal occupation of 97 per cent of the respondents was cultivation and for another 4.60 per cent it was their subsidiary occupation. The cultivators were mostly (85%) marginal and small landholders. They used to participate in all essential agricultural field works directly. The proportion of households principally and / or subsidiarily depended upon non-agricultural pursuits was considerably low. The most (91 per cent) of the respondents were found to live in *Kachha* huts.

Irrigation is an important pre-requisite for cultivation. However, 51.80 per cent of the respondents had no irrigated land. So they had to depend on vagaries of nature. Among the owners of irrigated land the medium and large farmers were better represented. Irrigation sources available to the farmers were Shallow Tube-well (S.T.W.), Deep Tube Well (D.T.W.), River Life Irrigation (R.L.I.), and Ponds etc. The S.T.W was found to be the main source of agricultural irrigation in the regions under study.

Little more than one-third (35.40 per cent) of the respondents had kitchen garden in the parts of their homestead land. It helped fetching them an average income of Rs. 1627 annually. All the major crops like jute, Aus and *Aman* paddy, wheat, potato, mustard etc., and varieties of vegetable were grown by the cultivators. Jute and HYV Aus paddy was the main crop in pre-*kharif* season. Majority of the respondents were inclined to cultivate jute. But due to low monetary return from it they were not paying much attention to fertilizer application in jute cultivation. The average yield of HYV Aus paddy was high and thus help augmenting income to the farm families. The farmers were quite aware of recommended practices involved in the cultivation of Aus paddy. Majority (81.72 per cent) of the growers of HYV Aus paddy applied balance dose of fertilizer in this cultivation. The high return from Aus paddy motivated the growers to adopt better and scientific cultural practices.

Rain fed *Aman* paddy was the dominant crop in *kharif* season. Due to its better outturn capacity the HYV paddy has replaced the local variety to a great extent. Though the average net return from the HYV paddy was high, the majority of the growers were not accustomed to apply any fertilizer in this cultivation. They thought such an application might go waste due to prolonged monsoon in the season. In the agrarian economy of the two districts under study the cultivation of *Aman* paddy occupies considerable importance.

During Rabi season the farmers used to grow wheat, potato, mustard, vegetables etc. Due to poor economic return from wheat, its average area under cultivation was dismally low. The farmers who grew potato reaped the highest net return on an average of Rs. 5574.70. The majority of potato growers had adopted scientific cultivation techniques. A section of marginal and small farmers were however less inclined to cultivate potato, as it was more capital intensive. Artificial irrigation has enhanced the area under vegetable cultivation in a big way. The farmers growing vegetables were conscious in applying recommended doses of fertilizer for their better yield.

Farmers of the study area presented a bleak picture as far as the ownership of modern agricultural implements like pumpset, thresher, tractor, power tiller etc. are concerned. An insignificant proportion of the farmers had quite a few improved agricultural implements and had gone for mechanization. In this age of mechanization in agriculture, draught animals remained the only source of farm power for majority of the farmers.

Chapter six deals with the nature of exposure of the respondents to agricultural information and their use in mitigating certain problems in family farming. In redressing the problems of agriculture and inculcating new practices the utility and effectiveness of Training and Visit system of extension has been examined here. The Training and Visit system is expected to function as an important medium of extension communication in providing up-to-date information on agricultural practices to the cultivators. The attitude, knowledge and adoption behaviour of the farmers towards new agricultural technology have also been reviewed in this chapter.

The respondents were in varying degrees exposed to farm broadcasting of radio and television, various agricultural messages appeared in print media like newspaper, leaflets, pamphlets; farm demonstration and other sources of information. In the study area about 43 per cent of the respondents were exposed

to radio. The corresponding percentage for television and film were 10 and 14 respectively. Nearly 18 per cent farmers had the habit of reading newspaper and only one per cent got the opportunity of reading magazine occasionally. The use of print and electronic mass media was often impaired by low levels of literacy and poor accessibility. Out of total radio listeners, 35.60 over cent used to listen to agricultural programmes of AIR and majority of them acquired some knowledges particularly about cultivation techniques and plant protections from those broad casting.

Among the viewers of *chasbas* programme telecasted by regional (Calcutta) television centre a few of them got some idea from it about fertilizer application and new cultivation techniques of certain crops like paddy, wheat and vegetables. To redress certain technical problems associated to their personal cultivation, about 29 per cent farmers became benefited from the information received from radio, printed materials and farm demonstration. Only 16.20 per cent respondents specifically found printed materials like leaflets and pamphlets as useful source of information and those helped enriching their knowledge in paddy and potato cultivation and thus enjoying better out turn.

Agricultural demonstration could be a powerful mass medium to disseminate new ideas and knowledge about certain agricultural practices. But only 11.20 per cent of the farmers got the opportunity to participate in demonstration camp or programme. So the situation was not at all encouraging. Only 11.60 per cent farmers had some exposure to agricultural fairs and exhibitions. Needless to say village level agricultural fairs and exhibitions are not held quite frequently or regularly.

The Department of Agriculture officially organizes training camp in every year with a view to motivate the farmers towards scientific cultivation practices that could lead to higher productivity. But ironically even when 75 per cent of the cultivators know about such training programme, only 19 per cent of them

actually attended the same. Technical knowledge acquired by the participants from training camps was mainly pertaining to irrigation and water management, scientific techniques involved in cultivation of different crops, and pest control method. However the post training follow-up measures adopted by the participant farmers were not all that satisfactory. So it warrants sustained efforts to improve the training component of the current extension programme.

Under minikit programme the State department of agriculture distributes small quantity of good quality of testified seeds to some farmers at different localities so that they can multiply and later distribute the same to others. Almost all the farmers were quite aware about the minikit programme, whereas only 34 per cent actually got the said inputs. The recipients of minikits suggested that to make it a more effective programme there is a need to supply better quality of seeds in time and in well advance before the commencement of the cropping season.

The farmers often encountered with certain operational problems in their agriculture. Problems of pest and disease, and inadequate irrigation were identified some of the major hazards faced by the farmers. Others were land reclamation, availability of inputs in time, exorbitant price of certain input etc.

To mitigate the technical problems of their agriculture, the farmers had to depend on formal and informal sources of knowledge and information. Leaving aside the formal or institutional sources of information, for about 59 per cent of the farmers, it was the fertilizer dealer who was their permanent as well as reliable source of information. About 41 per cent of the respondents used to seek advice from progressive and knowledgeable farmers of the village. There fore on the part of the project management there is a need to provide up-to-date knowledge of new agricultural technologies to both fertilizer dealers and progressive farmers by making frequent contact with them.

Under the Training and Visit (T&V) system of extension, direct linkage between KPS and the farmers has been prompted to promote and strengthen the diffusion process by fostering fortnightly visits of the KPS to farmers at their field situation. However, it has been observed that the linkage between the extension and farming system has failed to achieve the desired pattern as originally envisaged by the experts.

Present study reveals that even after two decades of operation of the T and V project in North Bengal, 48.40 per cent of farmers not even personally knew the KPS in their area. With reference to regularity of visit by the KPS, only nine per cent farmers were found contacted by the KPS². Thus the majority (91 per cent) of the farmers left uncontacted during the reference period. That indicates the basic weakness in the very functioning of the ongoing T and V system of extension. In terms of nature of contact between KPS and farmers it was about 71 per cent of the farmers who on their own personally contacted the KPS for securing required information and advice. Thus the farmers were serious and keen enough to obtain suggestion and advice from the KPS. On the question of kind of benefits received from KPS, for about 83 per cent of the farmers it was the KPS who helped them enrich knowledge about plant protection measures, fertilizer application, irrigation management, and in getting intimation of distribution of minikit. In contrast, about 17 per cent farmers found that as far as the knowledge and services are concerned, their contact with the KPS was not all that useful. On the question of fulfillment of information need the bulk (75.20 per cent) of the farmers reported that the advices offered by the KPS during their visits were not adequate enough to fulfil their information needs. The remaining

2. It is to be noted that according to the philosophy of T & V system at least 10 per cent of the farmers to be directly contacted by KPS for dissemination of agricultural information (Yadav, 1991: p74-75) who may further act as local contact farmers for the average and general cultivators.

28.40 per cent however gave some credit to KPS for offering them quite useful suggestions. They were also fortunate to exchange their views with KPS during his official field visit. The non-contact farmers were unable to enjoy the services offered by the KPS.

On the very utility of Training and Visit programme 25 per cent farmers felt that the programme is quite useful and it helped them in multiple ways to increase their farm output. However, majority (75 per cent) of the farmers were somewhat pessimistic about the merits of the programme. The main weakness of the programme, as identified by them, was the farmers' poor contact with the village level extension functionaries. They further suggested that to make the Training and Visit system much more effective, the activities of grass root level extension functionaries (KPS) need to be boosted in terms of frequency of their contact, concern about up-to-date information and its timely delivery to the clients.

It is interesting to note that despite several inadequacies of the existing T&V system of extension, the productivity of all the major crops has increased considerably. In fact, the two districts under study have improved enough in their yield of major crops. The farmers who were in close contact with extension workers used to enjoy certain services rendered by those village level functionaries. Another few farmers who had undergone training and acquired some technical knowledge about new agricultural practices often apply those in personal cultivation and also disseminate them to others. A small group of educated farmers found mass media like radio, television, leaflets, pamphlets etc., as important sources of agricultural information and that helped them acquiring knowledge about certain agricultural innovations. They are often approached by the common farmers for information and advice in agricultural matters. The commercial agents like fertilizer dealers of the area played an important role in providing certain information like fertilizer application, pest

control etc., to the consultant farmers. Thus, the agricultural information and extension system available and suited to the local condition serves in different ways in informing, educating and motivating the farmers.

The Training and Visit system has been introduced as the latest model of extension to boost up the agricultural production. In the present study, majority (71.60 per cent) of the respondents had some kind of favourable attitude towards this system. Better exposure and contact to training and village level functionaries has obviously helped some farmers to adopt new agricultural practices. Table 6.10 depicts that greater proportion (54.60 per cent) of the farmers had average to high level of scientific knowledge in cultivation and 45.40 per cent respondent farmers received a low score of knowledge in scientific cultivation. That is a slow but positive impact of T&V programme in the districts under study.

It is however quite surprising that out of 11 scientific practices recommended for paddy (a major crop) cultivation, seven were poorly adopted by the farmers. More than 80 per cent of farmers were found non-adopters of said practices. Those specific practices were plant protection measures, use of improved farm implements, seed treatment, irrigation management, better storing procedure, soil reclamation and use of improved cattle. The prime reasons behind non-adoption of such practices were inadequate knowledge of farmers about the recommendations and the cost involved in their use.

As far as the source of information is concerned the majority (about 52 per cent) of the farmers got necessary information about certain scientific treatments involved in paddy cultivation from the progressive / knowledgeable farmers of the locality. For another 31 per cent it was the fertilizer dealers. On the other hand only 18 per cent farmers received the requisite information from KPS. That certainly indicates the weakness of village level functionaries in dissemination required knowledges to the deserving farmers.

Adoption of certain recommended practices in paddy cultivation was influenced by nature of extension contact with the farmers. The association between the two was positive and significant. Adoption of some improved practices in paddy cultivation was strongly correlated with the level of knowledge of the farmers about new technologies and their attitude towards T and V system. It has been observed that farmers with favourable attitude towards T and V system adopted scientific procedures in a better way in cultivation of paddy than the others. Some of those potential adopters were well exposed to the training and visit system of extension and information. And for all practical purposes, ~~that agricultural extension~~ the said extension system appeared to them quite useful and progressive. One may further believe that if the existing shortcomings of the system are removed it could be an effective device of extension and communication in disseminating modern agricultural knowledge and information to the farmers.