Pak. J. Agri. Sa.. Vol. 31, *No.* 3. 1994

INVESTIGATION INTO SOME COMMON FACTORS WHICH AFFECT AGRICULTURAL RESEARCH AND EXTENSION WORK IN DEVELOPING COUNTRIES

Tanvir AIi, Saeed A. Khan, Niaz H. Malik, Munir Ahmad & Imran Saleem
Division of Education & Extension,
University of Agriculture, Faisalabad

The study cnvisgcd to identify some common factors which affect agricultural research and extension work in developing countries. It is based on the qualitative interpretive research paradigm. Lihrary was searched out to find the required information. The data were analyzcd using content analysis technique. It was found that lack of qualified research personnel, inadequate resources, inappropriate resource allocation, week research-extension linkages, low extension worker jfarmer .ratio, lack of practical skills on the part of extension workers, poor in-service training facilities, multiple work role of extension workers, lack of incentive for extension work, inefficient program planning, illiteracy and small land holdings of extension elientele were the common factors which affect agricultural research and extension work in many developing countries.

INTRPDUCTION

Agrictural extension has received increasing attention from both the governments of developing countries and developing organizations over the decade (Baxtcr, 1987; Randavay, 1992). Most of these countries are yet at the first time wave called agriculture, whereas an advanced country like USA has crossed industrial and information waves (Harkins, 1991). Majority of the total population in the third world countries li'.;s in rural areas and depends upon agriculture for its livelihood. Adam (1982) mentioned that about 50-80% of the households are dependent on agricultural employment in developing countries, majority are poor and illiterate.

The development of agriculture is the main hope for overall development in these countries. The most common type of organizations working for agricultural development in these countries arc agricultural research and agricultural extension. The focus of attention of these organizations is farmer-person who is engaged in the farming occupation.

Millions and billions dollars an; spent every year by donor agencies to improve the agricultural research and extension organizations of the developing nations. But, the rate of development is very low. If the factors which become obstacles to development are identified, it would be helpful become obstacles to development are identified, it would be helpful for donor agencies and the governments of developing nations to focus their attention to remove these obstacles. Therefore, this study was conducted to collect and analyzc information about the common organizational factors which affect agricultural research and extension work in developing countries.

MATERIALS AND 1\1t'FHODS

The qualitative interpretive research paradigm was used in this study. The information available in the library of the University of Agriculture, Faisalabad was collected and analyzed through qualitative analysis technique. The qualitative data were analyzed through the content analysis method.

RESULTS AND DISCUSSION

On the basis of analysis of data, some of the common factors which affect agricultural research and extension work in developing countries are discussed as:

Agricultural research erganlzatlen: Agricultural research organizations in developing countries are primarily engaged in the function of agricultural technology development. In 10 developing countries, selected and studied by the World Bank, it was found that the functions of technology development had been performed indepcndctly of those of technology transfer (The World Bank, 1985). Some factors/problems from within the research organizations which affect the agricultural research and extension work are analyzed as under:

Lack 0r qualified research personnel: Research organizations in developing countries are lacking in qualified research personnel. The luck of qualified manpower was practically evident in Indonesia, Mali, Nigeria, Kenya, Thailand and Turkey. In these countries, the scarcity of research skills was exacerbated by the dispersion of researchers to a large number of research stations. Very little emphasis had been placed on the development of local manpower. In these countries, in matters of developing institutional resources, the emphasis on manpower development was weak while that on improving the organizational structure was strong. But even the stronger organizational structure, so far, has not led to. any major improvement (The World Bank, 1985). The lack of qualified personnel in the research organizations affect the technology' .'development which ultimately affects: 'agricultural extension work as the poorly' developed technology is hard to be accepted or adopted by the farming community.

Inadequate resources and inappropriate resource allocation: In many developing countries, the research organizations do not have reasonably adequate resources to make an impact on major production problems. Resources are frequently allocated to crops or agricultural problems of.lcss than top priority, which leaves key agricultural commodities with inadequate research. In Sudan, fruits and vegetables were not considered key crops for the local population for export, not were key targeted in the national plan for further development. Yet, a third of all research arcivitics in Sudan involved fruits and vegetables. In Turkey, even though livctock provided about 35% of the gross value of agricultural production, animal research received only 8% of scientific resources (The World Bank, 1985). Inappropriate resource allocation to research organizations affects the development of agricultural technology needed by extension workers to pass onto farmers.

Inadequate research-extension linkages: An emerging priority of developing countries in extension is to improve their linkages between research and extension (Baxter, 1987). Agricultural research is of much importance for the development of agricultural technology but it is of little use until and unless it reaches the majority of farmers and practically applied by them on their farms. For this purpose, the extension organizations should have proper linkages with research organizations on one hand and with

farming community on the other. The extension service becomes ineffective if it does not have links with research specialists (Naqvi and Hamid, 1990). In the *U.S.* model of land grant universities, the research and the extension sub-systems are closely linked. But, in most of the developing countries agricultural research and agricultural extension are working under different administrative setups without sufficient communication linkages with each other. Even horizontal communications among research institutions are inadequate in most countries because of the fragmentation of responsibilities (The World Bank, 1985; Muhammad, 1983).

Agricultural extension service: As discussed earlier, agricultural extension service is engaged in the non-formal education of farmers. Some of the problems from within the agricultural extension service which affet agricultural extension work are analyzed as under:

The management problem: In most developing countries, extension services are organized along similar lines to civil service agencies, with offices at the national, provincial, district and rural council level. Complex organizations such as these have problems of communication between the upper and lower levels. All instructions and reports have to be transmitted through each link in the chain. Complex chains of commands cause delays and distortion of the extension messages (Adams, 1982).

Extension worker/farmer ratio: In economically advanced countries, the ratio of extension worker to farmers lies between *1:350* to 1:1000 whereas in most developing countries, this ratio is 1:5000 (Adams, 1982). In Nigeria, village extension agent to farmers ratio was 1:1153 (China and Langmead, 1985). The shortage of extension workers is a big problem in the situation where the majority of the farmers is illiterate, conservative and reluctant to change.

Lack of practical skills on the part of extension workers: Extension workers of some developing countries are often lacking in practical ability as a result of poor training and selection (Ali *et al.,* 1992). Frequently, their demonstration plots show how much they have to learn from the farmers they are supposed to teach (Adams, 1982). In Nigeria, it was found that the majority of the extension workers were primary school leavers with an average age of 25 who had taken a one year pre-service certificate course in agriculture. This course was too theoretical and concentrated on sole cropping when the majority of the farmers practised mixed cropping (China and Langmead, 1985). In some cases, extension workers get training from the institutions which are located outside their local regions. Adams (1982) says, "Separation occurs when extension teaching is centralized in the capital".

In most developing 'countries, college education and even school education had been confined largely to persons coming from urban families. Men of such background employed as extension workers often had little or no farming experience, and, furthermore, their education had been largely a metter of book learning (Whyte, 1986).

Poor in-service training facilities: In-service training facilities for extension workers in developing countries are also insufficient. Extension workers have a number of training needs. It was found in Kenya that extension workers had unmet training needs. They needed in-service training in crop production, farm management, land development, extension teaching methods, and program development (Nyamai, 1985). There was found no relationship in training needed and training received by agricultural extension agents in Riadh, Saudi Arabia (Eljudia, 1987). In Taiwan, it was found that leadership, introduction to agricultural extension

and agricultural policy were the most important training needs areas for extension people (Chu, 1985).

Multipurpose work role of extension agents: Too many non-extension duties are assigned to extension agents in developing countries (Ludgate, 1987). In a study of the extension of high yielding rice varieties in Tamil Nadu state of India, extension agents were responsible for supervising 30 or more other schemes, many of which had multiple operational components (one included promotion of 5 varieties, a loan program and fertilizer distribution). In addition, the extension agent was to submit a 21-page monthly report which could take up to a week to complete (Heginbotham, 1975).

The multipurpose role assigned to the field extension agents causes a distribution of their efforts between agriculture, health, family planning, procurement, collection of statistics, etc. As 'a consequence, the extension ,*,orker can perform neither his agricultural duties nor other duties effectively (Cernea, 1981). The work load of an extension agent may be very heavy. Tasks include:

i, writing applications for credit and subsidies for farmers;
ii. filling in may questionnaires and forms for headquarters;
iii. setting up and maintaining demonstration plots and distributing supplies.

The extension agent may be the only government officer operating at the local level, and may thus be given various non-agricultural tasks as well. Very little time is left for farmers or for in-service training. The little agricultural work that is done is rarely systematically planned or supervised (Adams, 1982).

Inefficient extension program planning: There is an inefficient planning of extension programs in developing countries. Arias (1992) while studying the constraints inhibiting the effectiveness of the Costa Rican Ministry of Agriculture (Extension Service) for small farmers concluded that small farmers were not made active participants in planning extension programmes. Approximately, 70% of small famrers were unaware of the existence of extension service.

Generally, extension programs are planned at the top level of the extension organization in which neither farmers nor extension workers arc involved. Extension programs arc usually planned and decisions taken by senior staff who tends to be out of touch with local problems and the day to day difficulties facing the farmer and the extension worker. There is barely any feedback to the deeision makers because intermediate staff are reluctatnt to pass back information which might imply criticism of their superiors (Adams, 1982). In many cases, extension workers do not have a written plan of work. In this situation how can we talk about the implementation of the plan of work?

Lack of incentives for work: The extension agent, the most important link in the research-extension-farmer chain, is often the least supported with transport, equipment and technical guidance. Supervision is usually inadequate. Two often, salaries and staff accomodation absorb most of the extension budget (Adams, 1982).

Low literacy level of extension clientele: In many developing countries, farmers are generally characterized by a high rate of illiteracy, low income and small farm operations (Arias, 1992; Sanggin, 1985; AIi *et al., 1993;* Cheema and Rehman, 19(3).

REFERENCES

Adams, M.E. 1982. Agricultural Extension in Developing Countries. Longman Group Ltd., Longman House, Burnt Mills, Harlow, Essex, UK.

Ali, T., R.L. Peterson, MA. Zia, K.M. Chaudhry and M. Ahmad. 1992. Analysis of job performance competencies possessed by agricultural extension field assistance in Faisalabad district, Pakistan. JAPS, 2 (1-2): 69-72.

Ali, T., N.H. Malik, SA. Khan, S.U. Khan and M. Ahmad. 1993. Some educational and economic chracteristics of apple growers in Quetta district, Pakistan. Pak. J. Agri. Sci. 30 (2): 162.

Arias, E. 1992. Constraints inhibiting the effectiveness of the Cost Rican Ministry of Agriculture Extension Service for small farmers in the canton of Buenos Aires. Summary of Res. in Ext. 1990-91, 5: 111.

Baxter, M. 1987. Emerging priorities for developing countries in agricultural extension. In: Rivera, W.M. & S.G. Schram (eds.). Agricultural Extension worlwide. New York, Croom Helm in Assoc. with Methuen, Inc.

Cernea, M. 1981. Sociological dimensions of extension organization: The introduction of T & V system in India. In: Crouch, B.H. & S. Chamala (eds.). Extension Education and Rural Development. John Wiley & Sons, New York.

Cheema, M.S. and S. Rehman. 1993. Who are our future farmers? J. Rural Dev. Admn.25 (30): 121.

China, R. and P. Langmead. 1985. The training and demonstration system of extension. Agri. Int. 37 (5): 184-188.

Chu, L. 1985. A needs assessment of the in-service training program for agricultural extension advisors in Taiwan. M.Sc. Thesis, Iowa State Univ., Ames, Iowa.

Eljuidia, AH. 1987. The training needs of agricultural extension agents in Riyadh, Saudi Arabia. Master's Report, The Univ. Arizona, Tucson.

Lancini, J.B. 1985. Strengthening the research/extension linkage through appropriate technology: A case study for Southern Philppine. Agri. Adrnn. Ext. 24: 61-67.

Harkins, AM. 1991. Class Lecture in the Course SPFE 5209, Summer II 1991. Univ. Minnesota, College of Education.

Heginbotham, S. 1975. Cultures in conflict. Four Faces of Indian Bureaucracy. Columbia Univ. Press, New York.

Ludgate, P. 1987. The recruitment and retention of agricultural extension agents in developing countries. Ph.D. Dissertation, Colorado State Univ., Fort Coliins.

Naqvi, H.Mo and A Hamid. 1990. A comparative study of training and visit system of agricultural extension in Punjab and N.W.FoP., Peshawar. Pak. Acad. Rural Dev.

Nyamai, J. 1985. In-service training needs of agricultural extension agents in Kiambu district, Kenya. Master's Study, Southern Illinois Univ., Carbondale.

Muhammad, A. 19830 Linkages between research and extension. Research and Development in Pakistan Agriculture. Pak. Agri. Res. Council, Islamabad. pp: 39-42.

Randavay, S. 1992. Self-perceived prolessional competencies needed and possessed by agricultural extension workers in western region of Thailand: A multivariate technique approach. Summary of Research in Extension, 1990-91. 5: 121.

Sanggin, S.E. 1985. Characteristics and need of farmers in sixteen universities pertanian Malaysia, Sarawak extension villages and their implications to program planning. M.Sc. Thesis, Iowa State Univ., Ames, Iowa.

The World Bank. 1985. Agricultural Research and Extension: An Evaluation of World Bank's Experience. Washington, Doe.

Whyte, W.F. 1986. The need for a new strategy. In: Hilderbrand, P.E. (ed.). Perspectives on Farming Systems Research and Extension. Boulder:Lynne Rienne Pub., Boulder, Colorado.