



# POLICY BRIEF

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## AGRICULTURAL EXTENSION IN INDIA - THE NEXT STEP

### The Setting

The arrangements for agricultural extension in India have grown, over the last five decades, in terms of activities, organisational types and available manpower. Public sector extension, represented mainly by the State Department of Agriculture (DoA), continues to be the most important source of information for the majority of farmers. Activities of other extension agencies, be it Non-Governmental Organisations (NGOs), input agencies, mass media, research institutions or farmers associations, though increasing, are still restricted to certain regions, crops and enterprises. The performance of public sector extension is under scrutiny for quite some time and questions are being raised on its capability to deliver goods in the rapidly changing environment. The major changes in agriculture, that have a bearing on the priorities and performance of agricultural extension are given in Box 1.

The shifting emphasis of Indian agriculture towards diversification, commercialisation, sustainability and efficiency has made it necessary for the state extension organisations to critically examine their extension approaches. DoA in several states made changes in some of their approaches (Box 2) towards the late 1980's as the Training and Visit System of Extension was coming to an end. But the basic issues regarding the type of support required by the farmers and the changes in extension organisation needed to provide these were not addressed

### Box 1 The changing nature of Indian agriculture

**Shrinking resource base** The land and water resource base for an average farm holding has declined considerably during the last five decades (Selvarajan S and Joshi P.K (2000) Socio-economic Policies in Natural Resource Management, Souvenir, International Conference on Managing Natural Resource for Sustainable Agricultural Production in the 21st Century, New Delhi.) . The main reason for the increasing resource degradation is the inappropriate and unscientific use of land and irrigation water. Degraded lands are either going out of cultivation or are being used for growing low value crops. Most of the future agricultural growth will have to come via yield enhancement, (that means more intensive but more appropriate and scientific use of natural resources) and from rainfed areas, wherein most of the technologies are knowledge based and need community action. Forming and sustaining farmers' groups will be crucial in achieving future agricultural growth.

**Changes in demand and consumption pattern** Per capita cereal consumption for food declined somewhat over the past three decades, while the consumption of fruits, vegetables, meat, fish, eggs and dairy products increased (Kumar, P(1998) Food Demand and Supply Projections for India, Agricultural Economics, Policy Paper 98-01, Indian Agricultural Research Institute, New Delhi ). The demand for livestock products has been increasing rapidly during the last two decades. Increasing per capita income and changing lifestyles are expected to further increase the demand for milk, fruits and vegetables. Rapid growth in livestock demand would push demand for cereals for livestock feed. Assuming a modest growth in per capita income of 2 percent, the total cereal demand in 2020 is projected at 257.3 million tons, a modest 70% increase over 1993 demand ( Bhalla. G.S, Peter Hazell and John Kerr(1999) Prospects for India's Cereal Supply and Demand to 2020, Food, Agriculture and the Environment, Discussion Paper 29, International Food Policy Research Institute, Washington, DC, ). For a country of India's size and population, importing huge quantities of grains is not feasible. The increased demand has to be primarily met through increase in productivity gained through increased application of knowledge by the farmers.

**Changing farming systems** The area under food grains as percentage of GCA has been declining in the Nineties, whereas the percentage share of non-food grains has been generally increasing during the same period. Area under horticultural crops (fruits, vegetables and tuber, spices and plantation crops) increased from 12.3 m.ha in 1991-92 to 15.0 m.ha in 1996-97. Farmers require a different type of support (training, problem-solving consultancy, marketing advice etc) for growing many of these crops, than simply information on technology, as was the case earlier.

**Declining public investments in agriculture** Public investments in agriculture, (investments in irrigation, rural roads, rural electrification, storage, marketing, agricultural research and education, land development, co-operation etc) in real terms since mid-seventies have been declining consistently in all the states ( Ramesh Chand,(1999) Emerging trends and Regional Variations in Agricultural Investments and their implications for Growth and Equity. Draft Project Report, NCAP. New Delhi ). Farmers have to join together to put pressure on governments to invest more and have to pool together their resources to develop and maintain the necessary infrastructure. Extension may have to support farmers in this endeavour. The increasing pressure on research funds to find technological solutions to more diverse problems necessitates serious efforts in research prioritisation and targeted technology development. Extension need to assist and direct researchers in problem focussing and evaluating technological options.

**International developments** Liberalisation of agricultural trade, consequent to the WTO agreements has resulted in new opportunities and threats to Indian agriculture. India is likely to gain in some crops, but consistent efforts for improving quality (to meet international standards) and increasing cost-effectiveness (increasing productivity, achieving cost reduction) in these crops/products are essential to achieve these. Liberalisation of agricultural imports, which would gain further momentum in the months to come, would subject our producers to competition from outside. There is an urgent need to increase the competitiveness of Indian agro-products.

### The changing needs of farmers for support from agricultural extension

Due to changing face of agriculture, farmers have to make a number of complex decisions now. Most relevant of them are as follows:

- a. What technological options could be used profitably in his/her situation keeping in view the potential resource constraints in terms of land, capital, labour and knowledge?
- b. How to manage the various technologies? (eg: how to make optimal use of new inputs in his farm?)
- c. How and when to change his farming system? (eg diversifying from crop production to mixed farming or vegetable or animal production)

- d. For which type of products, is there a good demand in the market?
- e. What are the quality specifications he should achieve to get good value for his produce and how to achieve
- f. How, when and where to buy inputs and sell products?
- g. How to make decisions collectively on resource use and marketing?
- h. How to find quickly the most relevant and reliable knowledge and information?
- i. What are the feasible off-farm income generation options available for him and how far he could depend on them?
- j. What are going to be the implications for his farming if the input subsidies are phased out and/or if the trade in agriculture is liberalised? (van den Ban. A.W (1998) Supporting Farmers' Decision making Process by Agricultural Extension, Journal of Extension Systems, Vol 14, 55-64).

To make good decisions, farmers need information from different sources and often need help to integrate them. Farmers are presently receiving information from extension mainly on technologies generated in research stations and passed on to extension. The emphasis, even now continues to be on foodgrains, though broadbasing of agricultural extension (including messages for other crops/enterprises) is an accepted philosophy. Moreover the efforts have been confined to the head of family only, though the outcome of many of the farm decisions is influenced by members of his family. Many new institutions (private and public) that have emerged during the last two decades are found to be providing support to farmers in some of the above areas. However, "their concentration of manpower and expenditure in specific crops and regions are affecting their effective outreach to the masses" (Sulaiman, R.V and V.V. Sadamate(2000) Scope of Privatising Farm Extension in India, Policy Paper 10(Draft), NCAP, N. Delhi ). Moreover, it is difficult to replicate them on a wider scale. The performance of the public sector extension agencies in either meeting many of the above needs or in integrating information from different sources have not been satisfactory. To perform these roles effectively, the DoA need more diverse types of expertise than what is available at present (Figure 1).

#### **Box 2: Changes in extension approaches-experiences from different states**

After the close of the World Bank supported National Agricultural Extension Project (NAEP), the central support to the state extension services dried up and many state governments initiated different extension approaches. Rajasthan adopted the group based approaches to extension and presently the village extension workers operate mainly through Kisan mandate (group of 20 farmers). The state has also been encouraging NGOs to participate in extension activities and has been contracting out some extension activities to them, particularly in the far flung areas where public extension is comparatively weak. Maharashtra adopted the single window system from July 1998, by merging the Departments of Agriculture, Soil and Water Conservation and Horticulture at the operational level. Kerala decentralised the functioning of the Department of Agriculture way back in 1987 by creating offices of DoA (Krishi Bhavans) in all panchayats. In 1989, the state initiated the group approach for extension in rice farming and this was subsequently extended to other crops. The agricultural development programmes are at present decided at the panchayat level. Punjab had been adopting the SAU-Farmer Direct Contact method over the past two decades and has also upgraded all front-line extensionists to graduate level. Andhra Pradesh Agricultural University has also established District Agricultural Advisory Technology Centres in all the districts for technology refinement, diagnostic visits and for organising field programmes in collaboration with DoA and allied departments.

Different approaches are also being tried in several projects in specific districts. For instance, the Agricultural Technology Management Agency (ATMA) model is presently under way in six selected districts in the country. This is a bottom-up approach based on Strategic Research and Extension Plans (SREP) prepared at the district level based on Participatory Rural Appraisal / oroch. Integration of the activities of agricultural and allied departments and other organisations such as KVKs is expected to be achieved through ATMA at the District level. Similar approach is also tried under Uttar Pradesh Diversified Agricultural Support Project (UPDASP). Apart from these, in several states, various approaches for organising farmers groups as Self Help Groups, are being tried mainly as part of external technical assistance to governments/NGOs. Krishi Vigyan Kendras, (presently numbering 261) continues to be the main source of training for farmers and agro-based entrepreneurs at the district level.

The need for making the system broad based, demand driven, and farmer accountable has been widely recognised. The need for linkages between other extension providers, prioritising public interventions, cost-recovery, contracting out services, higher use of mass media and Information Technology etc are also gaining acceptance. Measures to achieve many of these are presently under experimentation.

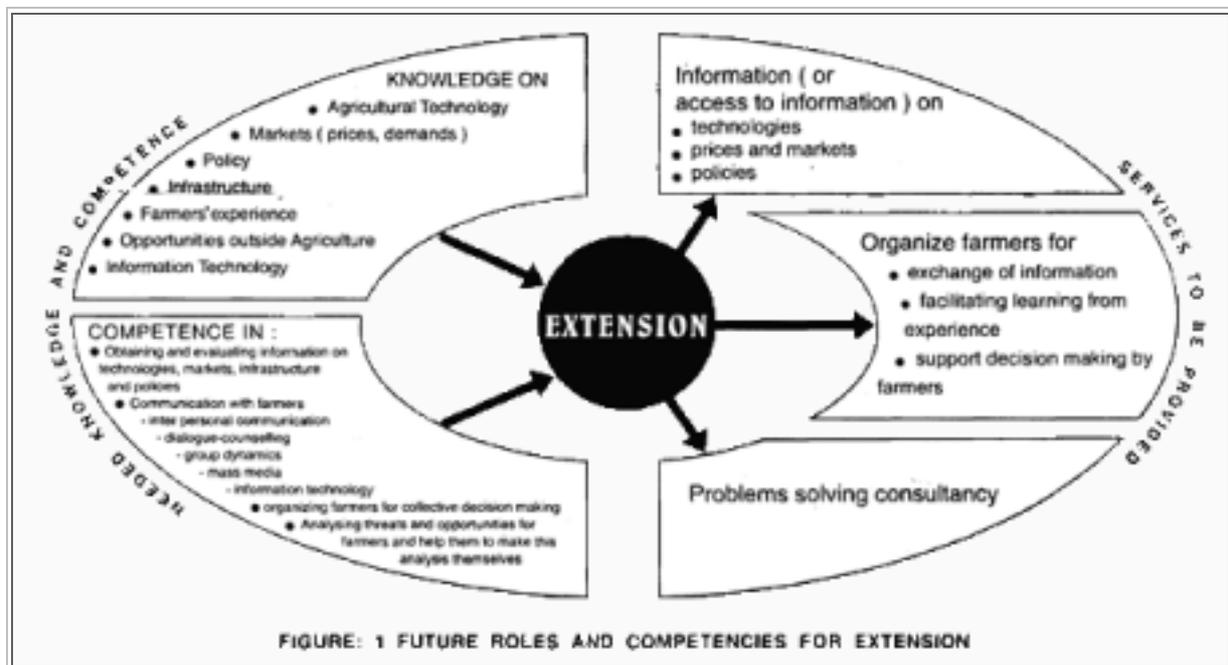
## Linkages

Though extension has to maintain effective linkages with several systems, only the Research-Extension linkages capabilities of the KVK and the quality of linkage have been so far emphasised. However, several measures to improve this linkage, though adopted, didn't yield positive results. "Information flow has been mostly top-down" (Macklin. M (1992) Agricultural Extension in India, World Bank technical paper 190, World Bank, Washington, D.C ) and "the weak feedback has not resulted in any fundamental change in the way research priorities are set at the research stations" (Jha, D and Kandaswamy. A (Eds) (1994) Decentralising Agricultural Research and Technology Transfer in India, ICAR. New Delhi and IFPRI. Washington. D.C.). Apart from linkages for obtaining technology, the capabilities of the extension agency to assess and refine them for its integration in their knowledge base has been very weak, mainly due to lack of qualified staff. The contribution of KVKs to do this important activity would eventually depend upon the it has with the line departments. In many cases, KVKs were found to be wanting in both. Efforts to develop functional linkages with other systems had been adhoc with no real outcome. With its main emphasis on transfer of technology and implementation of schemes which are input distribution related, the extension system never did take the other systems seriously though its performance did depend upon all these factors. As Mosher(1966) wrote more than three decades ago, "agricultural development requires markets for farm products, a constantly changing agricultural technology, local availability of supplies and equipment, production incentives which make it profitable for farmers to produce more and transportation to and from the village"( Mosher, A.T. (1966),Getting Agriculture Moving, Agriculture Development Council, New York).

An extension organisation is a knowledge intensive organisation, which is involved in the production and dissemination of knowledge. Hence the success of this organisation depends to a large extent on knowledge "management. A^ major role of its managers is to ensure that

- it gets relevant knowledge where ever this is produced,
- the staff members use their creativity to aquire/develop new knowledge,
- all staff members have access to all knowledge which is available in the organisation,
- one learns from experience on how to develop more effective extension methods,
- there is a social climate which stimulates sharing of knowledge and a critical analysis of the knowledge developed or used by colleagues (van den Ban, A.W (1997), Successful agricultural extension agencies are learning organisations, in R.K.Samanta and S.K.Arora(eds) Management of Agricultural Extension in Global Perspective, BRPC, India Ltd, Delhi ).

The most important challenge for the future extension managers would be the Management of Knowledge. The success of a farmer in the years to come is going to be primarily dependent upon his level of knowledge. The real prices of agricultural products are falling, because knowledge makes it possible to produce products with less land, labour and other resources. In many countries, farmers, who are farming at a knowledge level a good farmer had 10 years ago, have to go out of business because they can no longer compete with more competent farmers.



## Reforms

To be effective and to remain relevant in the years to come, the state extension departments should initiate the following structural reforms in the organisation.

- Strengthen its understanding on matters with respect to technology, markets, prices, demand and policies. Departments have to either recruit specialists or have to hire the services of professionals in these areas.
- Recruit better qualified staff - States have to initiate (as Punjab has done) measures to ensure that, the minimum essential qualification for an extension staff should be a graduation in agriculture. In total the states employ some 1,10,000 extension staff of whom presently only around 20 percent are graduates.
- Improve social science skills of extension personnel. Apart from technical skills, "extension personnel needs several social science skills with respect to need assessment, group formation, negotiation, conflict resolution, mobilisation, management of CPRs, use of IT, data collection, analysis and documentation" ( Farrington ,J, Suresh Pal, Rasheed Sulaiman V(1998) Improving the Effectiveness of Agricultural Research and Extension in India, Policy Paper 8, NCAP. New Delhi).
- Increase the allocation for operational expenditure. "Allocation of operating expenses in State Departments of Agriculture is around 15% whereas a fully functional extension system should have 30-35% of its total expenses as operational expenses"( Swanson,B(1996) Innovations in Technology Dissemination Component of NATP, (Prepared for Ministry of Agriculture), Delhi, mimeo).
- Decentralise the operations of the department and provide flexibility to field level officers to decide appropriate extension programmes. Initiate activities for developing Strategic Research and Extension Plans in all the districts to be followed up with Block level plans.
- Improve the capabilities of extension managers-Extension managers need skills to operate effectively in the pluralistic extension environment. They need to know, how their organisation can do better or cheaper than other organisations?, how can it co-operate with other actors in this system to provide all farmers better knowledge to survive and succeed in a competitive society?; and how to create the social climate for a successful learning organisation? The main challenge for an extension manager would be managing the process of change in extension. A series of training programmes have to be initiated to provide these skills.

## Future

As discussed earlier, the role of agricultural extension in the next decade should be quite different from what it was 10 years ago or even now. Its role as a facilitator of agricultural knowledge system would only increase as more participants from private sector would get involved in extension. It is likely that input related extension (seed, fertiliser, machines and chemicals) would move to private sector in the future. The public sector extension would still continue to be the major extension provider in most parts of the country as the private sector alone would not be able to meet even partially the

varied needs of farmers. The ability of the system to perform these roles would entirely depend on the pace of internal reforms, the system would undergo. Experience the world over is that it is easy to change farmers than to change government agencies. Internal reforms are thus going to be the greatest challenge for the Indian Extension System.

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NCAP has been established by the Indian Council of Agricultural Research (ICAR) with a view to upgrading agricultural economics research through integration of economics input in planning, designing, and evaluation of agricultural research programmes and strengthening the competence in agricultural policy analysis within the Council.

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