

India has made considerable progress in improving its food security. The agricultural development strategy pursued in the country, particularly since the mid-sixties, is recognized and appreciated world over. The integration of agricultural research with quality education and a properly planned extension education system has been one of the fundamental foundations of this developmental strategy, which also led to revolutions in many other sectors of agriculture and allied enterprises. As a part of this strategy, several programmes of transfer of technology from research stations to farmers' fields were launched in the country. These included National Demonstration Project, Lab to Land Programme, Operational Research Project and Krishi Vigyan Kendras (Farm Science Centers). The programmes were continuously reviewed from time to time and reformulated for their effectiveness. Presently the Krishi Vigyan Kendras (KVKs) have been recognized as an effective link between agricultural research and extension system in the country.

1.1 The genesis of KVKs

The genesis of KVKs can be traced to the Second Education Commission (1946-66), under the Chairmanship of Dr. D.S. Kothari, which *inter alia* recommended the establishment of 'agricultural polytechnics' to provide vocational education in agriculture to school drop-outs and other rural youths. After careful deliberation by the Union Ministry of Education, Ministry of Agriculture and the Planning Commission and as a follow-up of the Kothari Commission recommendations, the Indian Council of Agricultural Research (ICAR) appointed a committee under the Chairmanship of Dr. Mohan Singh Mehta of Seva Mandir, Udaipur in 1973 for formulating an institutional design for Krishi Vigyan Kendra (KVK) to provide vocational training in agriculture.

The basic principles for KVKs enunciated by the Mehta Committee (1973) included:

- i. The Kendra will impart learning through work-experience and hence will be concerned with technical literacy, the acquisition of which does not necessarily require the ability to read and write.
- ii. The Kendra will impart training only to those extension workers who are employed and to the practicing farmers and fishermen. In other words, the Kendra will cater to the needs of those who are already employed or those who wish to be self-employed.
- iii. There will be no uniform syllabus for the Kendras. The syllabus and programme of each Kendra will be flexible in nature and tailored according to the felt needs, natural resources and the potential for agricultural growth in that particular area.

Krishi Vigyan Kendra (Farm Science Centers), an innovative science-based institution, was thus established mainly to impart vocational skill training to the farmers and field-level extension workers. The concept of vocational training in agriculture through KVK grew substantially due to greater demand for improved/agricultural technology by the farmers. The farmers require not only knowledge and understanding of the intricacy of technologies, but also progressively more and more

skills in various complex agricultural operations for adoption on their farms. The effectiveness of the KVK was further enhanced by adding the activities related to on-farm testing and front-line demonstrations on major agricultural technologies in order to make the training of farmers location specific, need- based and resource-oriented.

The training programmes of KVKs were designed to impart the latest knowledge to the farmers through work experience by applying the principles of 'Teaching by Doing' and 'Learning by Doing'. The prime goal of KVK was to impart training as per needs and requirements in agriculture and allied enterprises to the farmers, farm women, and farm youths including school drop-outs in the rural areas. No formal certificate or diploma was awarded, irrespective of the duration of the courses to avoid the rush for jobs instead of self employment. While designing the courses, the concept of farming system as well as farming situation are taken into account to ensure that the enterprises in which they are trained are commercially and ecologically viable, sustainable and profitable. The vocational training was intended to help them to sustain themselves through self-employment and to make them self-reliant economically and thus discourage them from migrating to the urban areas.

KVKs provided training not only in agriculture and allied vocations but also in other income-generating activities that supplemented the income of farm families. The methods employed in training were formal, non-formal or a combination of both, depending upon the needs but emphasis remained on work-experience, as suggested by Mohan Singh Mehta Committee.

1.2 Mandate of KVKs

In the beginning, the mandate of KVK was confined only to provide skill based training to the farmers, farm women and rural youth in crop production, horticulture, livestock production, fisheries, home science, farm machinery and implements and other allied vocations such as apiculture, mushroom cultivation etc. Besides, various extension activities such as field demonstration, field days, farmers' fairs, exhibitions, radio/TV talks, film show, publication of farm leaflets, etc. were also carried out for creating awareness and to disseminate the agricultural technology. With the consolidation of other front-line extension projects of the Council during the Eighth Five Year Plan, such as National Demonstration Project (NDP), Operational Research Project (ORP), Lab to Land Programme (LLP) and All India Coordinated Project on Scheduled Caste/Tribe, the mandate was enlarged and revised to take up on-farm testing, long term vocational training, in service training for grass root extension workers and front-line demonstrations on major cereal, oilseed and pulse crops and other enterprises. The latest revised mandates of KVKs are as follows:

1. To conduct "On farm Testing" for identifying technologies in terms of location specific sustainable land use systems.
2. To organize frontline demonstrations on various crops to generate production data and feedback information.
3. To organize training to update the extension personnel with emerging advances in agricultural research on regular basis.
4. To organize short and long term vocational training courses in agriculture and allied vocations for the farmers and rural youth with emphasis on "learning by doing" for higher production on farms and generating self employment.

The application of technology in the farmers' field is achieved through conducting of On-farm trial which include technology assessment and refinement. The proven and recommended technologies are then introduced in the system through conducting of frontline demonstrations followed by training programmes to empower the farmers, field extension personnel and rural youths for its adoption. The extension activities such as field day, exhibitions etc are conducted to disseminate the technologies across the system.

1.3 Functional Objectives of KVKs

For fulfilling the prescribed mandate, the KVKs, at present, has to perform the following functions:

- i) To plan and conduct survey of the operational area through Participatory Rural Appraisal (PRA) methods and characterize physical and human resources with special reference to identifying the technological and training needs of the farming community.
- ii) To compile all relevant recommendations/package of practices for the district to be meaningfully utilized in the training programmes and the follow-up extension activities.
- iii) To plan and conduct production-oriented and need-based short and long duration training courses both on the campus as well as in the villages for various target groups with priority on the resource poor sections.
- iv) To organize Farm Science Clubs in order to inculcate in the younger generations a scientific temper and an interest on agriculture and allied sciences and for scientific farming through supervised individual and group projects.
- v) To develop and maintain the campus farms and demonstration units on scientific lines as the facilities for providing work experience to the trainees, dissemination of the latest technical know-how and also as a means to achieve financial sustainability in due course of time.
- vi) To provide practical training facilities of the Kendra to the teachers and the students of vocational agriculture of the higher secondary schools.
- vii) To provide added training facilities in the area for home making and nutrition education for rural communities and gradually enlarging the training facilities to encompass other important areas such as home/rural crafts and cottage industries with the requirements of the integrated rural development in collaboration with the concerned organizations.
- viii) To implement all such schemes of the ICAR and other related organizations which intend to strengthen the training and technology dissemination programmes as well as follow-up extension activities of the Kendra.
- ix) To undertake on-farm testing of the technologies developed by the National Agricultural Research System (NARS) in agriculture and allied fields for their suitability and identifying the constrains.
- x) To demonstrate the potentialities of various technologies and recommend for their adoption in maximizing yield/income per unit of time and area under different resource conditions.

1.4 Growth of KVKs

The first KVK was established by the Indian Council of Agriculture Research in Pondicherry during 1974. By the end of Fifth Five Year Plan, 19 KVKs were established. In view of its growing utility and the demand, 70 KVKs were sanctioned during the Sixth Five Year Plan (1980-85). During Seventh Five Year Plan, 20 more KVKs were established. The number of KVKs went up to 183 when 74 new KVKs were established during 1990-91 and 1991-92 by the Council. By the end of Eighth Five Year Plan, there were 261 KVKs in the country. During September 2001, the establishment of 66 new KVKs over a period of three years (2001-02 to 2003-04) was approved, out of which 15 KVKs were sanctioned during the last year of IX Five Year Plan, thus raising the number of KVKs to 276 at the end of IX Five Year Plan (2001-02).

It was decided to establish the remaining 51 KVKs (sanctioned during IX Five Year Plan) during the X Five Year Plan, out of which 15 KVKs were sanctioned during 2002-03. Later, a major decision to establish 201 new KVKs (on 100% funding basis) was taken to have at least one KVK in each district of the country. This has been one of the strong recommendations of the Parliamentary Standing Committee on Agriculture (PSCA) for many years. Considering that the number of rural districts is 578, it was decided to provide one KVK in each rural district by the end of X Five Year Plan raising the number of KVKs to 578.

During IX Five Year Plan, 53 Zonal Agricultural Research Stations (ZARS) were strengthened to function as KVKs for which funds were provided under National Agricultural Technology Project (NATP). It was decided to continue their functioning as full-fledged KVKs during X Five Year Plan also, to be financed out of Plan Budget of KVKs after the termination of NATP. All these KVKs have also started functioning as full-fledged KVKs from 1st April, 2004.

A total of 562 Krishi Vigyan Kendras are established across the country as on 31st December, 2008. Out of these, 382 are under State Agricultural Universities (SAUs) and Central Agricultural University (CAU). 40 under ICAR institutes, 88 under NGOs, 33 under State Governments, three under various Public Sector Undertakings (PSUs) and remaining 16 under other educational institutions.

1.5 Concept of KVK

The KVKs have witnessed several changes in their functions over the years. Accordingly their functional definition also has radically got refined so as to meet the new challenges in agriculture. The most recent definition of a KVK is as follows:

“KVKs are grass root level organizations meant for application of technology through assessment, refinement and demonstration of proven technologies under different ‘micro farming’ situations in a district” (Das, 2007).

It should be clearly understood that transfer of technology is not a primary function of KVKs and the same is the responsibility of State departments. The KVKs on the other hand will assess and

refine (if needed) the newly released technologies, demonstrate the proven ones and train farmers and Extension functionaries on the same.

1.6 Role of KVKs in the Context of Agricultural Extension in India

Agricultural extension in India is largely deployed by government, implemented mainly through government institutions and to some extent through non-government agencies. Krishi Vigyan Kendras (KVKs) or Farm Science Centres as institutes of inducing behavioural change, are being managed by both government and non-government organizations. Literally, Krishi Vigyan Kendras have to serve as repository of scientific knowledge that is useful to the entire district, which is its jurisdiction. In India, agricultural extension and extension education are interchangeably used with the same connotation as used in American tradition, meaning “Extending Information” as a means of educating people to solve their problems. As a result, agricultural extension in India is more of “Informative Extension” than “Emancipatory Extension”.

1.7 Changing needs of farmers for support from Agricultural Extension

As a result of rapidly changing agricultural scenario at the advent of WTO, farmers have to make different decisions than in the past. They now have to face decisions on:

1. Which technology to use?
2. How to manage this technology? Experience shows that the success of a technology on farms depends to a large extent on its management.
3. How to use his capital, land, labour in the most profitable way? The methodology taught in farm management courses to make these decisions becomes more and more important for financial success of a farmer.
4. How and when to change his farming system?
5. Whether or not to take a full time or part time job outside agriculture for himself or his children? This decision is of great importance for the welfare of the farm families. Everywhere with increasing incomes, the proportion of the labour force working in agriculture decreases. Also, in India not all farm families will be able to make a decent living based on income only from agriculture.
6. For which products is there a good demand in the market? With the rapidly changing markets, farm income depends a lot on the choice the farmer makes on which products to grow and whether he produces the quality the market requires.
7. How to increase the share he gets from what the consumer pays for his products? How and when to buy inputs and sell products? Can it help to start a co-operative?
8. How to make decisions collectively on resource use and in farmers’ associations? It is doubtful whether Indian agriculture can develop successfully unless farmers strengthen their associations.
9. How to find and use the most relevant and reliable knowledge and information, which the farmer needs for making decisions? Farmer, who do not receive and use new knowledge

rapidly, will have difficulties to compete with other farmers inside and outside India. But they have to check whether the information they receive is reliable and relevant for their situation.

10. How to get credit and production inputs on time, place and at suitable rate to derive support and profits by the farmers?

It may be wise for the KVK functionaries to decide that they will not try to help farmers with all the decisions they have to make, but to concentrate on few decisions, which the staff of the organization is really competent. The multi-disciplinary organization like KVK should try to make their Subject Matter Specialists competent enough to support farmers on decisions considered as important by the farmers of their district.

1.8 Role of KVKs in Agriculture and Rural Development

Agricultural and rural development encompasses the all round development of people in its effective dimensions of economic, social and agricultural scenario. World Bank defined “Rural Development as a strategy designed to improve the economic and social conditions of life of a specific group of people – the rural poor. It involves extending the benefits of development to the poorest among those who seek a livelihood in the rural areas”. Today, this definition still holds good. Hence, it is to be seen how these mandate of reaching the poor with benefits of development to be achieved? There is no second opinion that in India, rural development could be attained through improving agriculture, forestry, animal husbandry, dairying, sericulture, fisheries, rural engineering, and rural crafts. Empowering rural population to enable them to practice these occupations to earn more and live better will be a more specific criterion. Agriculture extension efforts by KVKs have an important contribution to make. It is a grass-root level organisation that can help to fight poverty, to foster education of rural people, and to promote behaviour and technology that link high productivity with natural resources sustainability.

Sustainable agriculture is termed as the system of raising crops for human utility through utilization of resources with greater efficiency without disturbing, unbalancing or polluting the environment. Concern for the coming generations holds the key here. The most important consideration of this kind of agriculture for KVKs is to keep the environment of the district harmonious and balanced through appropriate cropping and farming systems and by using the resources selectively and judiciously. Intensive cultivation of land without maintaining soil fertility and soil structure would cause desertification. Like wise, irrigation without provision for drainage would lead to fertile soil becoming saline and alkaline. Indiscriminate use of pesticides would adversely affect the biological balance. Unscientific and non-judicious tapping of underground water would lead to lowering of water table. Therefore, KVK personnel should note that adoption of exploitative agriculture without proper understanding of its consequences may lead to an era of agricultural and environmental disaster in the long run rather than an era of agricultural revolution and prosperity.

Agriculture, however, must be more than economically competitive. It must also be suitable, which entails conserving natural resources, such as soil, water and biological diversity, and taking into account agriculture’s social and cultural context. This complex challenge can also be overcome if traditional and new knowledge are effectively combined in new production systems that are

compatible with the cultural and social values of rural societies. Contributing to the development of such systems will be one of the most important tasks of KVKs.

In India, the extension efforts, particularly transfer of technology efforts, have largely been taken up by the state departments of agriculture and other disciplines as a state subject. The Indian Council of Agricultural Research (ICAR) as the apex body to provide new technologies in agriculture and allied aspects has its own transfer of technology activities too. The extension efforts of ICAR have evolved through National Demonstration Projects, Operation Research Projects, Lab to Land Programmes, and integrating of these approaches to Krishi Vigyan Kendras (KVKs) since 1974. Today, KVKs are the focal point for Assessment, Refinement and Demonstration of front line technologies for all developmental activities related to agriculture, community and industries in rural India. A total of 562 Krishi Vigyan Kendras are established across the country as on 31st December, 2008. Out of these, 382 are under State Agricultural Universities (SAUs) and Central Agricultural University (CAU). 40 under ICAR institutes, 88 under NGOs, 33 under State Governments, three under various Public Sector Undertakings (PSUs) and remaining 16 under other educational institutions.

From the beginning of this century the farm economy of our country has attracted widespread attention and several extension and development attempts have been made for its improvement. The British Administration had formed several committees to understand the features of farming systems and ways for its development. Among the various committees and their reports, the reports submitted by the Royal Commission on Agriculture (RCA) and W. A. Burns report on the Technological Possibilities of Agricultural Development in India (1944) are considered as significant. However, the pre-independence attempts on agricultural development were limited in scale and geographical coverage. These attempts did not have any follow-up action and lacks specificity in terms of programme planning and implementation. The above constraints in the agricultural development has been done away through the introduction of planning in the post-independence period which emphasized by a systematic and intensive approach.

The post independent extension education and development programmes launched by Government of India can be generally grouped into five categories. They are:

1. Community development programmes
2. Programmes for technology development
3. Programmes for development with social justice
4. Frontline extension programmes of ICAR
5. Agricultural Research and development programmes by ICAR and Govt. of India.

The list of programmes implemented under these five categories are given under:

Community development

1952	CDP	Community Development Programme
1953	NES	National Extension Service
1954	CDB	Community Development Block
1957	Panchayati Raj	Democratic Decentralization

Technological development

1960	IADP	Intensive Agricultural District Programme
1964	IAAP	Intensive Agricultural Area Programme
1964-65	ICDP	Intensive Cattle Development Project
1966	HYVP	High Yielding Variety Programme

Development with social justice

1970-71	SFDA	Small Farmers' Development Agency
	MFAL	Marginal Farmers' and Agricultural Labourers Programme
	DPAP	Drought Prone Area Programme
1972-73	PPTD	Pilot Project for Tribal Development
1974	T&V	Training and Visit Programme
1978-79	IRDP	Integrated Rural Development Programme
1979	TRYSEM	Training of Rural Youth for Self-Employment
1980	NREP	National Rural Employment Programme
1982	DWCRA	Development of Women and Children in Rural Areas
1983	NAEP	National Agricultural Extension Project
1986	TMO	Technology Mission on Oilseeds
1989	JRY	Jawahar Rozgar Yojana
1993	EAS	Employment Assurance Scheme
1994	SFAC	Small Farmers Agri Business Consortium
1999	SGSY	Swarnajayanti Gram Swarozgar Yojana

ICAR Frontline Extension Programmes

1965	NDP	National Demonstration Project
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1974	KVK	Krishi Vigyan Kendra
1975	ORP	Operational Research Project
1979	LLP	Lab to Land Programme
1995	TAR-IVLP	Technology Assessment and Refinement – Institute Village Linkage Programme

Agricultural Research and Development Programme

1979	NARP	National Agricultural Research Project
1989	TMDD	Technology Mission on Dairy Development
1998	NATP	National Agricultural Technology Project
2007	NAIP	National Agricultural Innovation Project
2008	NADP/ RKVY	National Agriculture Development Programme (NADP) or Rashtriya Krishi Vikas Yojana (RKVY)

1.9 Current Extension Scenario: Issues and Approaches

Extension in this context includes all those agencies in the public, private, NGO and community based initiatives that provide a range of agricultural advisory services and facilitate technology application, transfer and management. Apart from public sector extension arrangements, the number and diversity of private extension service providers has increased during last two decades. These include NGOs, producer associations, input agencies, media and agri-business companies. Many provide better and improved services to farmers, but their effective reach is limited and many of the distant and remote areas and poor producers are neither served by the public nor the private sector.

1.9.1 ATMA/SREP

In the case of public sector extension, the major reform in recent years has been the establishment of a district level co-ordinating agency, the ATMA (Agricultural Technology Management Agency), in 24 pilot districts with the World Bank support. Under ATMA, grass root level extension is mainly channelised through the involvement of BTTs (Block level Technology Teams) and FACs (Farmer advisory committees), farmer groups/ farmer interest groups and self help groups. ATMA is a district level autonomous agency entrusted with the role of agricultural technology management in the district.

ATMA is a society of key stakeholders in agricultural activities for sustainable agricultural development in the district. It is a focal point for integrating Research and Extension activities and decentralising day to day management of the public Agricultural Technology System (ATS). It is a registered society responsible for technology dissemination at the district level. The ATMA was initially pilot tested in 24 districts across six participating states (Andhra Pradesh, Bihar, Himachal Pradesh, Maharastra, Orissa and Punjab).

The ATMA at district level would be increasingly responsible for all the technology dissemination activities at the district level. It would have linkages with all the line departments, research organisations, non-governmental organisations and agencies associated with agricultural development in the district. ATMA management committee comprises of the Project Director of ATMA as the Chairman and members are drawn from line department heads, NGOs and farmers' organization. The management committee carries out PRA, prepares Strategic Research Extension Plan for the district, establishes Farmer Advisory Centres and co-ordinates the execution of annual work plan through participatory line departments such as ZRSs, KVKs, NGOs, FIGs/FOs and allied institutions. The ATMA creates Farmers Advisory Committees to provide feedback. It uses NGOs to organize farmers and encourages private sector in technology transfer. It also validates and refines technology. It also ensures increased use of information technology, arranges in-service training and encourages developing of new public and private partnership. The ATMA Governing Board (GB) comprises District Magistrate /Collector as chairman, Chief Development Officer as Vice Chairman and, Joint Director Agriculture, Head KVKs, one farmer, one NGO representative, one SC/ST farmer, Lead Bank Officer of district and representative from Agricultural Marketing Board as members.

1.9.2 SREP (Strategic Research and Extension Plan)

It is the process of finding the best scenario for agricultural development and setting the best path to reach that destination by rigorous analysis and choices about; goals, opportunities and threats, strengths and weaknesses with respect to agricultural development in a district.

Goals-what is intended to be accomplished?

Opportunities and threats- what is needed and feasible?

Strengths and weakness-what is the capability of doing things?

SREP document provides the details of problems and technological needs for agricultural development in a district. Basic aim of SREP is to link the research and extension system with the farmers. It is a bottom up approach exercise carried out at the district level to identify the technological and training needs of the farmers. It speaks about extension and research priorities to be undertaken by the extension and research system based on the grass root analysis carried out by the SREP team. It is a comprehensive document prepared for the purpose of understanding the district agricultural scenario and to undertake need based research and extension programmes.

Based on the experiences gained from the pilot district, the Ministry of Agriculture, Government of India in 2004-05 decided to expand the ATMA model across all the districts in the country. Extension continues to be funded as part of central and state level schemes/ programmes without much operational freedom at the local level, though the strategic research and extension plans (SREP) under ATMA envisage bottom up planning for extension. Marketing extension has been a recent addition but is understood and implemented mostly as provision of output price information in various markets and this is highly inadequate to address the challenges in marketing. Other extension support facilities created include, Farmer Training Centers (FTCs) at the district level; SAMETI (State Agricultural Management and Extension Training Institute) at the state level, EEI (Extension Education

Institute) at the regional level; and MANAGE (National Institute for Agricultural Extension Management) at the national level. The details of the current institutional arrangements operating in the country is given in table 1.

Table - 1 : Current Extension Institutional Arrangements

Sl. No.	Extension organisations	Functions/ Roles / Capacity
1	ATMA	Aimed at decentralized decision making and bringing convergence among extension providers in a district; Promotion of commodity interest groups; Development of a strategic research and extension plan; Provide additional funds to these agencies for key extension activities such as farm schools, demonstrations, exposure visits and trainings.
2.	KVK	Technology application (technology assessment and refinement) through on-farm trials, front-line demonstration and training, Formation of FIGs, SHGs, etc.
3.	State line departments (Agriculture, Animal Husbandry, Fisheries, etc.)	Regulatory role; Implementation of development programmes that involve distribution of subsidies and subsidized inputs; Organizing extension programmes, farmers training etc.
4.	FTC	Training farmers on new technologies, Formation of SHGs, FIGs, etc.
5.	SAU (Directorate of Extension)	Implement extension programmes of the SAU and oversee activities of KVK.
6.	NGOs	Exhibit wide diversity in terms of reach, credibility and capacity; Have good knowledge and networks with communities in villages they operate; Present in difficult and remote regions; Innovative in their approaches; Can potentially complement approaches of the public sector extension.
7.	Private Agri-Business firms	Agri-input firms mainly involve in product demonstration; Agro-processing and marketing firms mainly commodity oriented but do provide integrated support (inputs, technical support and marketing) for contract growers.
8.	Media	Dissemination of information on new technologies. Eg. E TV – Annadata, Krishi Darshan etc.
9.	Private consultants	Support large farmers growing cash crops and high value horticulture.

Sl. No.	Extension organisations	Functions/ Roles / Capacity
10.	MANAGE	Training senior and middle level extension managers; Conduct studies on extension systems and policies; Conduct management educational programmes in agriculture, Provide consultancy.
11.	SAMETI	Training middle level extension staff at the state level; Conduct studies on extension systems at the state level.
12.	EEl	Training middle level extension managers at the regional level.

The technology generation and its application is focusing upon the themes of optimization by producers of their valuable resources, sustainability and coping with diversity by adapting technology more specifically to agro-ecological or social circumstances. The details of extension reforms initiated are given in the table-2.

Table - 2 : Details of Extension Reforms

Sl. No.	Extension Reforms	Issues addressed and Approaches
1.	Policy Reforms	<ul style="list-style-type: none"> i) Farming systems Approach Multi agency extension service <ul style="list-style-type: none"> (a) public extension services (b) private extension services (c) mass media and information technology (ii) Promotion of farmer participatory approach (iii) Promotion of demand driven and farmer accountable extension (iv) Public extension to enable farmers for problem solving skills (v) Encouraging private sector involvement in technology transfer (vi) Public funds for private extension services
2.	Institutional Restructuring	<ul style="list-style-type: none"> (i) District level Agricultural Technology Management Agency (ATMA) model (ii) Strategic Research and Extension Plan (SREP) through Participatory Rural Appraisal (PRA) (iii) Block/Mandal level technology centre for single window extension system. (iv) Group approach to extension (v) Strengthening Research-Extension-Farmer linkages

	(vi) Promotion of multi-agency extension service for widening the range of extension delivery agencies
3. Management Reforms	<ul style="list-style-type: none"> (i) Central support to state Govt. for extension services on their undertaking of policy and institutional reforms. (ii) Routing of Central Govt. funds through ATMA (iii) Central Assistance to SAUs for expanded role in field extension (iv) Promotion of community based private extension services (v) Promotion of NGO based private extension services and contracting out extension services (vi) Promotion of para-professional based private extension (vii) Linkage of performance with funding for public sector
4. Strengthening Research-Extension Linkages	<ul style="list-style-type: none"> (i) Promotion of direct interface between farmers and scientist (ii) Activating existing interface mechanisms (iii) Research priority setting based on SREP
5. Capacity Building of Extension functionaries	<ul style="list-style-type: none"> (i) Formulation of HRD policies by States (ii) Formulation of training plan for extension functionaries (iii) One time catch-up grant for training infrastructure (iv) Upgrading State level Extension Training Institutions (v) Strengthening role of MANAGE (vi) Developing professionalism in cost effective manner and networking among extension institutes
6. Empowerment of Farmers	<ul style="list-style-type: none"> (i) Involving farmers in setting extensive agenda (ii) Implementation of programme through farmers users groups (iii) Involving rural youth and mainstreaming of women with crop and livestock (iv) Improving access to extension and training (v) Expounding the sphere of women extension workers and redesigning of extension services to reach women farmers
7. Use of Information Technology	<ul style="list-style-type: none"> (i) Wider use of electronic mass media and increasing use of information technology in extension (ii) Farmers participation in IT Programmes (iii) State support for information technology and networking (iv) Promoting private information Kiosks (v) Capacity Building for use of IT

8.	Financial sustainability and resource mobilisation	<ul style="list-style-type: none"> (i) Cost cutting mechanisms for extension services and efficient use of available resources (ii) Privatization of agro services (iii) Towards a realistic cost recovery of agro-services (iv) Co-financing of public extension (v) Initiating new financial systems and management for avoiding bottlenecks and redtapism
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Farming System Approach replaces the conventional single discipline based, commodity oriented approach. The Farming system approach considers the farm, the farm household and off-farm activities in a holistic way to take care not only of farming but also all aspects of nutrition, food security, sustainability, risk minimization, income and employment generation which make up the multiple objectives of farm households. Farming system considers interdependencies of the components under the control of members of the households as well as how these components interact with the physical, biological and socio-economic factors not under the household's control. The Farming system approach emphasizes that research and extension agendas should be determined by explicitly defined farmers' needs through an understanding of the existing farming systems rather than the perception of research scientists or extension functionaries.

With current reforms and policies, the public extension system would continue to play a prominent role in technology dissemination. The large scale of small and marginal farmers and landless labourers are benefited by the public extension system. The other players involved in extension/transfer of technologies such as NGOs, Farmers organisations, Private sector (both corporate and informal), para-workers etc. would actively complement/ supplement the effort of the public extension agency. Extension mechanism will have to be driven by farmer's needs, location specific and address diversified demands. There is room for both the public and private sectors in the development of a demand based and feed back driven system. Technologies required to address total farming systems are knowledge intensive. Public extension system will need to be redefined with focus on knowledge-based technologies to upgrade and improve the skills of the farmers.

Farmers' capacity building is often seen within the limited perspective of giving them the knowledge and skills required to practice crop and animal husbandry in a better way. Though, knowledge and skills are fundamental to efficiency in any enterprise, Indian farmers need more than that because of the limitations and complexities under which they operate. The KVKs which have been mandated to work with farmers, farm workers and rural youth directly as well as through field extension functionaries have the greatest challenge to make their clients more efficient, specialized and to be economically active. The fact that the need for agricultural and rural information and advisory services is to intensify in the immediate future exerts more pressure on KVK performance. This publication is aimed to assist the KVK scientists in equipping themselves for the future challenges by providing a clear cut outline and exclusive guidelines regarding the mandated activities assigned to them. The contents thus are need based covering the basics of KVK functions, tools for problem identification at district level, technology assessment and refinement, technology demonstration, training methodology, impact assessment tools along with basics of statistics, guidelines for participatory technology development and details of various agricultural and current rural development programmes. The book concludes with action tools useful for making KVKs a vibrant institution followed by associated reviews of interest to KVK scientists.

