Agricultural Extension

(Reading Materials for Village Level Workers)

Department of Agriculture & Cane Development

Krishi Bhawan, Kanke Road, Ranchi-834008

&

State Agricultural Management & Extension Training Institute

Krishi Bhawan Campus, Kanke Road, Ranchi-834008

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Organized by

State Agricultural Management and Extension Training Institute (SAMETI)

Krishi Bhawan Campus, Kanke Road, Ranchi- 834008, Jharkhand

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Concept, Objective, Principle, Philosophy and Process of Extension

In agriculture, knowledge and decision-making capacity determine how production factors – soil, water and capital – are utilized. Agricultural extension is central in formulating and disseminating knowledge, and in teaching farmers to be competent decision makers. Therefore, extension plays an important role in most of agricultural development projects.

The primary goal of agricultural extension is to assist farming families in adapting their production and marketing strategies to rapidly changing social, political and economic conditions so that they can, in the long term, shape their lives according to their personal preferences and those of the community.

Agricultural Extension generally known as a process and a system in which information, knowledge and skills relating to farming practices are transmitted through various channels and methods to its clients. Agricultural extension is generally perceived as a focal point in formulating and disseminating knowledge and in teaching farmers to be competent decision makers.

Concept of Agricultural Extension

The use of the term 'extension' originated in England in 1866 with a system of university extension which was taken up first by Cambridge and Oxford Universities, and later by other educational institutions in England and in other countries. The term 'extension education' was first used in 1873 by Cambridge University to describe the particular educational innovation. The objective of university extension was to take the educational advantages of universities to ordinary people. There are many experts and practitioners who have defined and opined extension in various ways encompassing many facts of extension's functions.

Historically, extension has meant education in agriculture and in home economics for rural people. This education is practical, aimed at improving farm and home.

According to Ensminger (1957) extension is education and its purpose is to change attitudes and practices of the people with whom the work is done. Leagans (1961) conceptualized extension education as an applied science consisting of content derived from research, accumulated field experiences and relevant principles drawn from the behavioural sciences synthesized with useful technology into a body of philosophy, principles, content and methods focused on the problems of out-of-school education for adults and youth.

The National Commission on Agriculture (1976) refers to extension as an out-of-school education and services for the members of the farm family and others directly or indirectly engaged in farm production, to enable them to adopt improved practices in production, management, conservation and marketing.

Objectives of Extension

Objectives are expression of the ends towards which our efforts are directed. The fundamental objective of extension is to develop the rural people economically, socially and culturally by means of education.

The general objectives of extension are :

1. To assist people to discover and analyze their problems and identify the field needs.
2. To develop leadership among people and help them in organizing groups to solve their problems.
3. To disseminate research information of economic and practical importance in a way people would be able to understand and use.
4. To assist people in mobilizing and utilizing the resources which they have and which they need from outside.
5. To collect and transmit feedback information for solving management problems.

Functions of Extension

Keeping the objectives in view, the function of extension is to bring about desirable changes in human behaviour by means of education. Changes may be brought about in their knowledge, skill, attitude, understanding, goals, action and confidence.

Principles of Agricultural Extension

Principles are generalized guidelines, which form the basis for decision and action in a consistent way. The universal truth in extension, which have been observed and found to hold good under varying conditions and circumstances are presented.

1. **Principles of cultural difference**

   Culture simply means social heritage. There is cultural difference between the extension agents and the farmers. The differences may be in their habits, customs, values, attitudes and way of life. Extension work, to be successful, must be carried out in harmony with the cultural pattern of the people.

2. **Grassroots principle**

   Extension programmes should start with local groups, local situations and local problems. It must fit to the local conditions. Extension work should start with where people are and what they have. Change should start from the existing situation.

3. **Principle of indigenous knowledge**

   Indigenous knowledge systems have developed through generations of work experiences and problem solving in their own specific situations. The indigenous knowledge systems encompass all aspects of life and people consider it essential for their survival. Therefore, the extension agent should try to understand them and their ramifications in the life of the people, before proceeding to recommend something new to them.

4. **Principle of interest and needs**

   People's interests and needs are the starting points of extension work. Identifying the real needs and interests of the people are challenging tasks of Extension Agents. The extension agents should not pass on their own needs and interests as those of the people. Extension work shall be successful only when it is based on the interests and needs of the people as they see them.

5. **Principle of learning by doing**

Learning remains far from perfect, unless people get involved in actually doing the work. Learning by doing is most effective in changing people's behaviour. This develops confidence as it involves maximum number of sensory organs. People should learn what to do, why to do, how to do and with what result.

6. **Principle of participation**

Most people of the village community should willingly cooperate and participate in identifying the problems, planning of projects for solving the problems and implementing the projects in getting the desired results. The participation of the people is of fundamental importance for the success of an extension programme. People must share in developing and implementing the programme and feel that it is their own programme.

7. **Family principle**

Family is the primary unit of society. The target for extension work should, therefore, be developing the family as a whole, economically and socially. Hence, the farmers, the farm women and farm youth are also to be involved in extension programmes.

8. **Principle of leadership**

Identifying different types of leaders and working through them is essential in extension. Leadership traits are to be developed in the people so that they on their own shall seek change from less desirable to more desirable situation. The leaders may be trained and developed to act as carriers of change in the villages. The involvement of local leaders and legitimization by them are essential for the success of a programme.

9. **Principle of adaptability**

Extension work and extension teaching methods must be flexible and adapted to suit the local conditions. This is necessary because the people, their situation, their resources and constraints vary from place to place and time to time.

10. **Principle of satisfaction**

The end product of extension work should produce satisfying results for the people. Satisfying results reinforce learning and motivate people to seek further improvement.

11. **Principle of evaluation**

Evaluation prevents stagnation. There should be a continuous built-in method of finding out the extent to which the results obtained are in agreement with the objectives fixed earlier. Evaluation should indicate the gaps and steps to be taken for further improvement.

Philosophy of Extension

Philosophy is the pursuit of wisdom, a body of general principles or laws or a field of knowledge. Essentially philosophy is a view of life and its various components. The practical implication is that the philosophy of a particular discipline would furnish the principles or guidelines with which to shape or mould the programmes or activities relating to that discipline. According to Kelsey and Hearne (1967), the basic philosophy of

extension education is to teach people how to think, not what to think. Extension's specific job is furnishing the inspiration, supplying specific advice and technical help, counseling to see that the people as individuals, families, groups and communities work together as a unit in 'blueprinting' their own problems, charting their own courses, and that they launch forth to achieve their objectives. Sound extension philosophy is always forward looking. This philosophy becomes the foundation of needs and levels of extension.

Need for Extension

The need for extension arises out of the fact that the condition of the rural people in general, and the farm people in particular, has got to be improved. There is a gap between what is – the actual situation and what ought to be – the desirable situation. This gap has to be narrowed down by the application of science and technology in their enterprises and bringing appropriate changes in their behaviour.

According to Supe (1987), the researchers neither have the time nor are they equipped for the job of persuading the villagers to adopt scientific methods, and to ascertain from them the rural problems. Similarly, it is difficult for all the farmers to visit the research stations and obtain first-hand information. Thus, there is need for an agency to interpret the findings of research to the farmers and to carry the problems of the farmers to research for solution. This gap is filled by the extension agency.

Levels of Extension

Extension is generally thought of at two levels, extension education and extension service. Extension at these two levels are interrelated, but at the same time maintain their separate identity.

The function of extension education institutions and organizations is to educate, train and develop professionals for teaching and research in extension and for the extension service, and also to develop methodology for research in extension and field extension work. The field extension work of these institutions and organizations is generally limited to the neighbouring villages or blocks, which are considered as their extension laboratories.

Extension service – It is mainly to provide educational service to the people according to their need, for improving their life through better working. The main responsibility of extension service is with the State Government. The departments of Agriculture, Horticulture, Animal Husbandry, Veterinary, Forestry, Fishery, Sericulture, etc. of the State Government carry out extension work with the farmers and rural people over the entire State. The departments maintain close contact with the relevant Universities and Research Institutes for obtaining appropriate technology and methodology for extension work, and for providing them with feedback information from the field for research. The extension service provided by the departments of the State Government, is location specific, input-intensive and, target and result oriented. The extension service works in close coordination with other development departments, input supply agencies, credit institutions, voluntary organizations and Panchayats. The extension service has the main responsibility of educating and training the farmers, farm women, rural youth and village leaders of the State and for this purpose they take the help of the universities, research institutes, training institutes and extension organizations.

Two more trends in extension service are currently visible in India. These are, decentralization of extension through closer coordination with Panchayats (Local Self-Government), and privatization of extension through increased private sector participation.

The Extension Educational Process

Extension education is a participatory process and involves five essential and interrelated steps. The sequence of steps is discussed on the basis of concept developed by Leagans (1967).

First Step. The first step consists of collection of facts and analysis of the situation. Facts about the people and their enterprises : the economic, social, cultural, physical and technological environment in which they live and work. These may be obtained by appropriate survey and establishing rapport with the people.

Second Step. The next step is deciding on realistic objectives which may be accomplished by the community. A limited number of objectives should be selected by involving the local people. The objectives should be specific and clearly stated, and on completion should bring satisfaction to the community. Objectives should state the behavioral changes in people as well as economic and social outcomes desired.

Third Step. The third step is teaching, which involves choosing what should be taught (the content) and how the people should be taught (the methods and aids to be used). It requires selecting research findings of economic and practical importance relevant to the community, and selection and combination of appropriate teaching methods and aids.

Fourth Step. The fourth step is evaluating the teaching, i.e. determining the extent to which the objectives have been reached. To evaluate the results of an educational programme objectively, it is desirable to conduct a re-survey. The evidence of changed behaviour should be collected, which shall not only provide a measure of success, but shall also indicate the deficiencies, if any.

Fifth Step. The fifth step is re-consideration of the entire extension educational programme in the light of the results of evaluation. The problems identified in the process of evaluation may become the starting point for the next phase of the extension educational programme, unless new problems have developed or new situations have arisen.

Thus, the continuous process of extension education shall go on, resulting in progress of the people from a less desirable to a more desirable situation.

Evolution of Extension Programmes and Projects in India

Experiments with extension have been a unique feature of the development of extension in India. Long before the introduction of extension system at the national level in 1952, there had been sporadic attempts in developing the rural life. A knowledge of the previous extension efforts shall serve as a useful background in understanding the development of systems of extension in India. The early extension efforts had two distinct patterns. First, there were attempts by some benevolent persons and private agencies to improve rural life. Second, attempts were made at the Government level to initiate some projects to solve the pressing problems in agriculture. The attempts made by the individual persons and private agencies are Gurgaon project in Haryana by Mr. F.L. Brayne; Sriniketan Experiment in Bengal by Sri Rabindra Nath Tagore; Servants' of India Society, Pune, in Tamil Nadu, Uttar Pradesh and Madhya Pradesh; Sir Daniel Hamilton's Scheme of Rural Reconstruction at Sundarban in Bengal; Rural Reconstruction Work by Christian Missions through Allahabad Agricultural Institute: The Christian College, Nagpur; Marthandam project by Dr. Spencer Hatch under the auspices of YMCA; Sevagram experiment in Wardha by Mahatma Gandhi; Adarsh Seva Sangh, Pohri, Gwalior, Indian Village Service in Lucknow and Etwah in Uttar Pradesh by Mr. A.T. Mosher and Sri B.N. Gupta and Sarvoday Programme in Bombay Province.

The Community Development Programme which emphasized development in all spheres of people's life slowly directed towards attainment of specific objectives as over the years it was felt necessary. Keeping this in view, agriculture which was the main stay of Indian economy was given more thrust for its development and accordingly various development programmes for agricultural production and productivity were launched since 1960s. Sole objective of these programmes were economic upliftment of the people of the country and taking them out from the below poverty life. All the programmes focused towards agricultural development by which large majority of rural people are dependant solely on agriculture were aimed for their socio economic development. Hence, the major developmental programmes initiated over the years

Stage 1 : Community Development

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

Stage 2 : 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
1979	LLP	Lab to Land Programme
1983	NAEP	National Agricultural Extension Project
1986	TMO	Technology Mission on Oilseeds
1999	TAR-IVLP	Technology Assessment and Refinement – Institute Village Linkage

		Programme
1999	NATP	National Agricultural Technology Project
2000	ATIC	Agricultural Technology Information Centre
2006	NAIP	National Agricultural Innovation Project

Stage 3 : Development with Social Justice

1970-197	1SFDA	Small Farmers' Development Agency
	MFAL	Marginal Farmers' and Agricultural Labourers Programme
	DPAP	Drought Prone Areas Programme
1972-1973	PPTD	Pilot Project for Tribal Development
1974	T&V	Training and Visit Programme
1978-1979	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
1989	JRY	Jawahar Rojgar Yojana

All these programmes, though not attempted towards development of agricultural extension but definitely aimed at improving production and productivity which ultimately helped in obtaining more income and livelihood security. But all the programmes followed extension approach to reach to its clients and target groups to provide them with education, information, knowledge, skills, understanding and other related matters so as to empower them in accomplishing their goal of economic upliftment. Today, both field extension and extension education are going side by side, helping each other to reach farming community more effectively by translating research findings into action through extension and building capacity among the farmers in their farming endeavour.

Community Development Programme (CDP)

The Community Development Programme (CDP). It was launched on 2nd October 1952. Over the years this single development programme achieved tremendous results and benefits in the field of agriculture, rural development, social and economic development and umpteen benefits have been accrued to the people of the country and they progressed towards achieving economic independence.

The Community Development Programme made a significant impact among the people in the villages for their own development in all aspects of their day-to-day life.

Agricultural Development and Extension Programmes

Objectives of the extension have been to increase productivity at any cost and in the process have ignored the key issues like clients needs and problems, appropriate technology development and dissemination. Also ignored the other issues like, ensuring input supply and information services, training of farmers and extension

personnel for knowledge and skill upgradation to cope up with the technological advancement, marketing and management.

These things are to be made on perfect blending of Research and Extension. Extension will be effective, meaningful and purposeful only when it draws required information from research and feeds to farmers for their use.

Intensive Agricultural District Programme (IADP)

With a focusing on increasing productivity and production IADP was launched in July 1960 in 7 selected districts of various states in its first phase and later extended to another 9 districts more in second phase during 1963-64.

This programme was aimed at integrated and intensive approach to solve the problems of agricultural production through adoption of package of improved practices. The achievements accomplished through this programme were tremendous and it really made a dent into the rural poverty for its eradication through agriculture. This programme was popularly known as Package Programme.

Intensive Agricultural Area Programe (IAAP)

To meet the demand of food for the vast population of the country, it was decided that atleast 20 to 25 per cent of cultivated area of the country should be earmarked and selected for intensive agricultural development. Accordingly in 1964, IAAP came into operation in 114 districts of the country. The IAAP's main objective was to bring about the progressive increase in production of main crops in selected areas by intensive and coordinated use of various aids to production. The IAAP partially achieved its prime objectives by increasing food production in the selected area and on the selected crops.

High Yielding Varieties Programme (HYVP)

The IADP and IAAP were concerned with the package approach and intensive agriculture and these programmes increase the food production to some extent. But in the later period, when yield was stabilized, it could not meet the demand of food production and this experience directed the need of HYVP.

The HYVP was launched in Kharif 1966-67 with a sole objective to increase the total food production by utilizing high yielding seeds of selected crops. The selected crops were paddy, wheat, bajra, jowar and maize. The salient features of HYVP were : (1) Supply of inputs like seeds, fertilizer and plant protection chemicals, (2) Supply of credit, (3) Cooperative marketing, (4) National Demonstration and (5) Training.

These programmes achieved some significant result, particularly in the areas of increasing production and the awareness to the cultivators about available means of increasing production like high yielding seeds, fertilizers and plant protection chemicals. However, there were also failures in this programme like unfavourable seasonal conditions, susceptibility of some crops towards pests and diseases and incomplete adoption of package of practices by many cultivators. During this period and after, it was felt that small farmers who were constituting around 60 per cent of the total cultivators require special support and development systems for their agro-economic development.

Drought Prone Area Programme (DPAP)

In India, approximately, 19 per cent of the total land is frequently affected by drought. To overcome this problem. Government of India launched the DPAP during 5th Five Year Plan in June 1973.

Command Area Development Authority (CADA)

Government of India established Area Development Authority in July 1973 and later it was converted into CADA from June 1974. The basic concept of this CADA was to establish coordination among the different departments like irrigation, soil conservation, agricultural extension, cooperation and credit agencies. The aim of CADA was to bridge the gap between the irrigation potentialities and its actual coverage in irrigation of the land. The CADA's more important function was to utilize the water available through its various irrigation projects and to distribute the same under command area through modernized distribution system. This programme helped in achieving some objectives of availability of irrigation water through dam / canals, but it could not meet the need / demands of vast area of land in the country and in the process wherever these facilities were available, the farmers of these areas got maximum benefits by utilizing irrigation water for their cultivation but other areas deprived of it and gap widened between the two areas and its people.

Training and Visit (T & V) System of Agricultural Extension

The Training and Visit (T&V) system, the brain child of Dr. Daniel Benor (World Bank Consultant) was introduced in India in 1974 for all round development of agricultural extension system in the country to introduce observation, training and technology transfer to the farmers and extension workers so as to enable them achieving greater productivity and production in the agricultural sector.

This new agricultural extension strategy was developed for accelerating economic growth and reduce absolute poverty from poorer nations by the end of 20th century on the suggestions of Robert S. Mc. Namara, the then President of World Bank in its annual conference held at Nairobi in 1970. This was World Bank assisted project and introduced in number of countries beginning first in Israel. This system has been introduced at first in 1974 in two states viz., Rajasthan and West Bengal and then spread to another 16 states of the country aimed at building a professional extension service that is capable of assisting farmers in raising production, increasing incomes and of providing appropriate support for agricultural development. The important features of this system include professionalism, as single line of command, concentration of effort, time bound work, field and farmer orientation, regular and continuous training and close linkages with research.

The creation of a dynamic link between farmers, professional extension workers, and researchers was done through the training and visit systems of extension. By adopting and implementing T&V system in its extension network India gained a lot in increasing its food production with scientific means coupled with effective technology transfer system.

National Agricultural Extension Project (NAEP)

The basic objective of NAEP was to bridge the gap between the research system with that of extension system so that the transfer of technology takes place at a much faster rate resulting in higher production and prosperity in the rural sector in general and agricultural sector in particular. In spite of these special extension efforts, there remained large gaps in achieving in certain sectors which needed more concerted attention.

Various Client Focused Programmes and Projects in Agricultural Development

Small Farmers' Development Agency (SFDA) and Marginal Farmers and Agricultural Labourers (MFAL) SFDA started with the objectives to help and identify the special problems of small farmers as producers and also identifying marginal farmers and agricultural labourers, so that necessary measures can be taken to boost their occupation and helping them to get appropriate income as wages for support to their cultivation.

Integrated Rural Development Programme (IRDP)

The basic concept of IRDP was both on planning and implementation of rural development policies in an integrated system. It includes (1) coordination among different organizations involved, (2) improvement of vertical integration relationship among government agencies at village, block, district, state and central level, (3) giving importance to local level administration in deciding the programmes, planning of projects etc. (4) optimum utilization of local resources and change in individual values and perception of rural people towards socio-economic changes in the village and more importantly the people's participation in formulation, implementation and evaluation of the development programme.

This IRDP included all the sectors in its operation to help people in the rural area to attain their economic upliftment. The sectors included agriculture, animal husbandry, fisheries, horticulture, forestry, industry, marketing and service sectors..

The Intensive Cattle Development Project (ICDP)

The initiation of Key Village Scheme in August 1952 was the first systematic attempt to improve the quality and productivity of cattle and buffaloes in the country. The ICDP was initiated in 1964-65. The objectives of the project were the same as the Key Village Scheme, but had much wider in scope. It envisaged provision of a package of improved practices to the cattle owners to effect a breakthrough in milk production (National Commission of Agriculture, 1976).

Training of Rural Youth for Self-Employment (TRYSEM)

The Centrally sponsored scheme TRYSEM was launched by Government of India under Department of Rural Development on August 15, 1979. TRYSEM is a facilitating component of the IRDP. The major and significant objective of TRYSEM was to provide technical skills to the rural youth from the families below poverty line to enable them to take up self employment in the broad fields of agriculture and allied activities, industries, services and business enterprises. This system helped a lot of unemployed rural youth in the country to earn substantial amount of income for their own maintenance and also were engaged in permanent livelihood earning. Though this programme could not overcome the huge unemployment in the country, it showed the path for their taking up own initiatives for self employment and earning for their own development.

Development of Women and Children in Rural Areas (DWCRA)

A unique programme, called DWCRA was started as a sub-scheme of IRDP in 1982-83 with a sole objective of improving the conditions of women and children in the rural areas. The rational behind the programme was that the women's income is known to have positive correlation with the nutritional and educational status of the family and in building of positive attitude towards status of women. If they are developed and empowered, all care could be possible for the looking after of their children in a more desired manner. Through this programme, most of the rural women started earning some income and that enabled them to take care of them and their children's well being to a great extent.

Jawahar Rozgar Yojana

Jawahar Rozgar Yojana to provide employment to the rural poor was initiated in 1989. National Rural Employment Programme (NREP). Rural Landless Employment Guarantee Programme (RLEGP) were merged

into this programme. The expenditure under the programme was shared by the Centre and the States on 80:20 basis. The central assistance under this programme was released to the districts directly. Not less than 80 per cent of the allocations under the programme received by the districts were given to the village panchayats. It was estimated that the programme received by the districts were given to the village panchayats to provide fuller employment opportunities to atleast one member of each family living below the poverty line who sought unskilled employment (Department of Rural Development, 1989).

Extension Methods – Individual, Group and Mass

The extension worker is essentially a teacher. He must visualize the problems in proper perspective and organize the meaningful learning situation for effective learning. It calls for appropriate use of different teaching techniques. Most of the success in bringing about the desired changes in behaviour of learners depends upon the skill of the extension worker as teacher in choosing the teaching techniques most effective to the relevant situations.

The choice of a channel or method of communication, also known as extension teaching method, generally depends on the number and location of the target audience and the time available for communication. They are categorized as individual, group and mass methods. Each of the methods has both advantages and limitations. The extension agent has to choose a particular method or combination of methods according to the needs of the situation. The extension methods according to their use are classified into the following Categories :

Individual Method

In individual method the extension agent communicates with the people individually, maintaining separate identity of each person. This method is followed when the number of people to be contacted are few, are conveniently located close to the communicator, and sufficient time is available for communication. Some examples of following method are : Farm and home visit, Farmers' call, Personal letter, Adoptive or mini kit trial and farm clinic.

The Individual methods are :

i) Farm and Home Visit

It is a direct face-to-face contact by the extension agent with the farmer or homemaker at their farm or home for extension work.

ii) Farmers' Call

It is a call made by farmer or home maker at the working place of the extension agent for obtaining information and assistance.

iii) Personal Letter

This letter is written by the extension agent to particular farmer or home maker in connection with extension work. This should be regarded as a substitute for personal contact.

iv) Adaptive or Minikit Trial

It is a method of determining the suitability or otherwise of a new practice in farmers' situation. This may be regarded as an on farm participatory technology development practices in which farmers choice and farmers opinion about the practice are mos important.

v) Farm Clinic

Farm clinic is of facility developed and extended to the farmers for diagnosis and treatment of farm problems and to provide some specialized advise to individual farmers. The extension agency may set up farm clinics in the village and / or in the organization's headquarters and

sub-centres, where the relevant subject matter specialists, in collaboration with the extension agents, discuss, diagnose and prescribe treatment to farmers' problems, meeting those persons individually, on fixed place, day and time.

Group Method

A group may be defined as an aggregate of small number of people in reciprocal communication and integration around common interest. In this method, the extension agent communicates with the people in groups and not as individual persons. This method is adopted when it is necessary to communicate with a number of people simultaneously, who are located not far off from the communicator and reasonably good time is available for communication. The examples of group methods are result demonstration, method demonstration, group meeting method, small group training, field day or farmers day and study tour or exposure visit.

The Group methods are :

i) Result demonstration

It is a method of motivating the people for adoption of a new practice by showing its distinctly superior result. The demonstrations are conducted in the farm or home of selected individuals and are utilized to educate and motivate groups of people in their neighbourhood. This is a very effective method for the transfer of technology in a community.

ii) Method demonstration

It is relatively short-time demonstrations given before a group of people to show how to carry out entirely new practice or a old practice in a better way. It is essentially a skill training, where the emphasis is on effectively carrying out a job, which shall improve upon the result.

iii) Group meeting

It is a method of democratically arriving at certain decisions by a group of people, by taking into consideration the members' point of view. Group meetings and discussions aim at collective decision making and at improving individual decision making by using the knowledge and experience of group members.

iv) Small group training

It is a technique of imparting specific skills to a group of people who need them by creating an appropriate learning situation. This is an effective method for transfer of technology.

v) Field day or farmers' day

A method of making the people to adopt a new practice by showing what has actually been achieved by applying the practice under field conditions. A field day or farmers' day may be held in a research farm or in a farmer's field or home.

vi) Study tour or Exposure visits

In study tour a group of interested persons accompanied and guided by one or more extension agents moves out of their neighbourhood to study and learn significant improvements in farm and home elsewhere.

Mass Contact Method

In this method the extension agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual or group identity. Normally group boundary gets obliterated. This method is valid when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators such as the extension agent and some subject matter specialists. The size of the audience may be a few 100s in mass meeting, few 1000s in campaign and a few lakhs in newspaper, radio and television. A few examples of mass methods are farm publications, mass meeting, campaign, exhibition, newspaper, radio and television.

Mass contact methods are :

i) Farm publication

It is a type of publication prepared by the extension agency in printed form, containing information relating to the improvement of farm and home. Farm publications are of various types such as leaflet, folder, bulletin, newsletter, journal and magazine. Farm publications may be used singly or in combination with other extension methods.

ii) Mass meeting

It is held to communicate interesting and useful information to a large audience at a time. The size of the audience for mass meeting may be a few hundreds, but at the time of fairs or festivals it may be few thousands.

iii) Campaign

It is an intensive educational activity for motivating and mobilizing a community to action to solve a problem or specify a need urgently felt by it. The duration of a campaign may be for a single day on a theme like 'Water for Life', for a few weeks as in Rat control for a few months as in Vanamahostava (tree planting) and for a few years as in 'Grow More Food' campaign.

iv) Exhibition

It is a systematic display of models, specimens, charts, photographs, pictures, posters, information etc. in a sequence around a theme to create awareness and interest in the community. This method is suitable for reaching all types of people. Exhibitions may be held at the village, block, sub-division, district, state, national and international levels.

v) Newspaper

It is a bunch of loose printed papers properly folded, which contains news, views, events, advertisements etc. and is offered for sale at regular intervals particularly daily or weekly. Newspapers are usually printed on a special type paper, known as newsprint. Extension agent cannot exercise any control over the newspaper. However, by establishing a good rapport with the editor, reporter etc. a reasonable support for extension work may be obtained. Newspapers may support extension work by publishing news of extension activities and achievements, extension recommendations and package of practices, success stories, market news, focusing farmers problems, advertisements issued by extension organizations, input dealers etc. Newspaper is a good medium of communication in times of crises and urgent situations. Most of the Indian

language daily newspapers devote a page or a part of it on agriculture and rural development on a fixed day of the week.

vi) Radio

It is an electronic medium for broadcasting programmes to the audience. This medium is cosmopolite in approach and is suitable for communication to millions of people widely dispersed and suited in far-flung remote areas. Availability of low cost transistor sets has helped radio to penetrate deep into the rural life. Radio is suitable for creating general awareness amongst the people, help to change their attitude and reinforce learning. The medium is extremely convenient for communication in times of crises and urgent situations. People with no education or very little education and those who are not in a position to attend extension programmes personally, can take advantage of this medium and build up adequate knowledge and skill. It reaches a large number of people at a very low cost. The programmes may be listened to while one is engaged in farming or household work.

vii) Television

It is an electronic audio visual medium which provides pictures with synchronized sound. Television combines immediacy of radio with the mobility of cinema and can carry messages over long distances at relatively low unit cost. It is cosmopolite in approach and can be used and create instant mass awareness.

New Dimensions in Agricultural Extension

Agricultural extension has a crucial role to play in the context of growing demands of agricultural production in a sustainable manner. Reforms in the system envisage an extension service more broad-based and holistic in content and scope, thus beyond agricultural technology transfer. Its normal task of transferring and disseminating appropriate technologies and agronomic practices would not be sufficient. Extension agencies, services and functionaries will need to exercise a more proactive and participatory role, serve as knowledge information agents, initiating and facilitating mutually meaningful and equitable knowledge based transactions among primary producers, agricultural researchers and trainers. All this needs to be done in an effective and cost efficient manner.

The need for reforms in agricultural extension has been explicitly raised in the National Agriculture Policy; the report of Expenditure Reforms Commission, as well as, the Tenth Plan approach paper. Keeping the recommendations of these policy initiatives in view, and to provide policy directives for extension reforms, a broad Policy Framework for Agricultural Extension (PFAE) has been developed by the Ministry of Agriculture, Govt. of India.

The five major guiding elements of the Policy Framework are as follows

- Reforming Public Sector Extension.
- Promoting private sector to effectively complement, supplement and wherever possible to substitute public extension.
- Augmenting Media and Information Technology Support for Extension.
- Mainstreaming Gender Concerns in Extension.
- Capacity Building/ Skill up-gradation of farmers and extension functionaries.

The reforms enlisted above have been pilot tested under Innovations in Technology Dissemination (ITD) component of World Bank funded National Agricultural Technology Project (NATP) with effect from November, 1998 in seven states viz. Andhra Pradesh, Bihar, Himachal Pradesh, Jharkhand, Maharashtra, Orissa and Punjab covering 4 districts in each State. An autonomous institution – Agricultural Technology Management Agency (ATMA) has been established in these project districts as a registered society representing various stakeholders, including farmers, in project planning and implementation.

Extension Reforms

Extension Reforms were introduced during 2005-06 by the Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Government of India as a major intervention in addressing the constraints as observed in T & V and post T & V system by making the extension system farmer driven and farmer accountable through process and institutional reforms mechanism. The institutional mechanism in the form of Agricultural Technology Management Agency (ATMA) at district level was pilot tested under Innovations in Technology Dissemination (ITD) component of National Agricultural Technology Project (NATP) in seven states and 28 districts from 1998 to 2004. The key features of reforms are:

i) New institutional arrangements – Decentralized decision making

ii) Convergence of line departments – Gap filling mode

iii) Multi agency extension strategies – encourage private sector (minimum 10% allocation)

iv) Broad-based extension delivery through Farming Systems Approach (FSA)

v) Group approach to extension through Farmers Organizations (FOs) and Commodity Interest Groups (CIGs)

vi) Gender concerns-minimum 30% allocation

vii) Sustainability of extension services – Minimum 10% beneficiary contribution

viii) Bottom-up planning

Salient Features of ATMA

ATMA is established at district level as an autonomous institution providing flexible working environment involving all the stakeholders in planning and implementation of extension activities. ATMA is a unique district level institution, which caters to activities in agriculture and allied sectors adopting a farming systems approach and convergence of programmes of related departments. Local research and extension priorities are set through Strategic Research and Extension Plans (SREPs), which are developed using participatory methodologies.

ATMA is registered under the "Societies Registration Act of 1860" that has considerable operational flexibility. It operates under the guidance of a Governing Board (GB) that determines program priorities and assesses program impact. The executive head of ATMA is known as the Project Director (PD) and reports directly to the ATMA Governing Board.

One of the most important activities undertaken by ATMA is to prepare Strategic Research and Extension Plan (SREP), which consist of detailed information about agriculture and allied sectors in the district. The purpose of preparation of SREP is to identify research and extension needs of the district. This helps in undertaking only those extension activities which are needed by farmers in the district. SREP is prepared with full participation of farmers and their representatives at different level. Technical officers of agriculture and allied departments as well as from KVKs and other research institutions fully participate in preparation of SREPs.

Based on the research-extension strategies given in the SREPs, block/ district level plans are developed by ATMA institutions. The State Extension Work Plan developed at state level is a consolidated activity-wise plan incorporating all the district level plans and the state level activities.

In order to provide needed Human Resource Development (HRD) support in the innovative areas of extension delivery, State Agricultural Management and Extension Training Institute (SAMETI) has also been established in each state.

Recommendations of National Commission on Farmers (NCF)

The National Commission on Farmers (NCF) has examined the issues relating to farmers and made the following recommendations.

1. Commodity based farmers' organizations should be promoted to combine the advantages of decentralized

production and centralized services, post-harvest management, value addition and marketing, for leveraging institutional support and facilitate direct farmer–consumer linkage. It would provide small farmers 'power of scale'

2. Considering that majority of our farmers are small and resource poor and depend heavily on public good technologies and information, the public sector agricultural extension men and women should be empowered and sensitized to meet the demands particularly by forging research–extension–education–farmer–market linkages

3. Farmer to farmer learning is the most credible and effective. For this purpose, Farm Schools may be established in the fields of outstanding farmers and awardees of nationally recognized awards for farmers

4. Recognizing the input dealers and suppliers were second most common source of information for farmers, regular trainings of the dealers / suppliers / retailers should be organized not only to update their knowledge but also to improve their communication skills and attitudes to empower farmers with new information on inputs use and farming operations.

5. Information and Communication Technology (ICT) should be effectively harnessed to empower rural men and women through Every Village a Knowledge Centre movement with farming system and season specific information as well as market and price information.

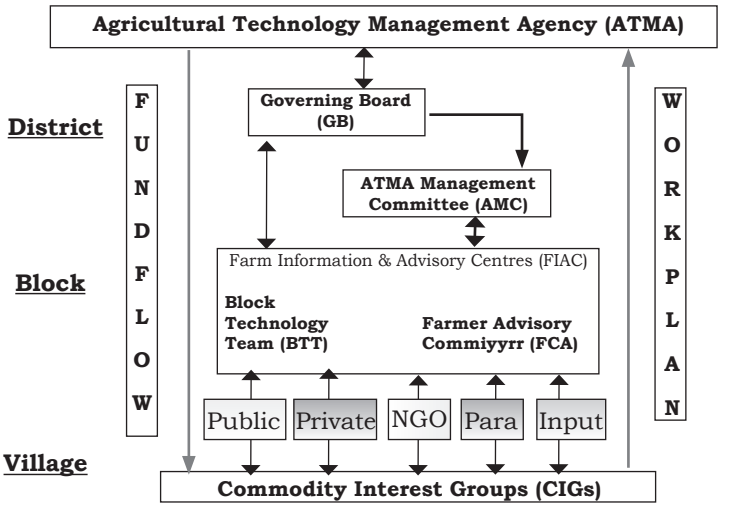
Agricultural Technology Management Agency (ATMA)

The reforms envisaged have been pilot tested with effect from November, 1998 in seven states viz. Andhra Pradesh, Bihar, Himachal Pradesh, Jharkhand, Maharashtra, Orissa and Punjab covering 4 districts in each State. An autonomous institution — Agricultural Technology Management Agency (ATMA) has been established in these project districts as a registered society representing various stakeholders, including farmers, in project planning and implementation under the guidance of the National Institute of Agricultural Extension Management (MANAGE), Hyderabad.

The onus of translating these into action was with the ATMA, created in each project district and supported under NATP. The responsibility of ATMA was to bring together researchers, extensionists, farmers and other stakeholders (including NGOs, corporate and private sectors), on the basis of joint diagnostic studies, district extension plan and recommendations for expanded adaptive research to introduce innovations in technology dissemination matching to local needs and situations. The purpose of Extension Reforms Scheme is to promote new institutional arrangements and operational procedures – not merely strengthen the existing extension system. One of the important goals is to decentralizedecision – making to the district level through the creation of Agricultural Technology Management Agency (ATMA). A second goal is to increase farmer input into programme planning and resource allocation, especially at the block level, and to increase accountability to stakeholders. A third major goal is to increase programme coordination and integration, so that the programme thrusts such as Farming System Innovations, Farmers' Organizations, Technology gaps and Natural Resource Management can be more effectively and efficiently implemented.

Agricultural Technology Management Agency (ATMA) is a registered society of key stakeholders involved in agricultural activities for sustainable agricultural development in the district. It is a focal point for integrating Research and Extension activities and decentralizing day-to-day management of Agricultural Extension System.

Organizational Structure of ATMA



To operationalize the above reform initiatives under ITD – NATP, an Agricultural Technology Management Agency (ATMA) has been established in each district as an autonomous institution providing flexible working environment involving all the stakeholders in project planning and implementation. As depicted in the diagram, ATMA is a unique district level institution, which caters to activities in agriculture and allied departments adopting a Farming Systems Approach. It can receive funds directly from Government of India/ States, Membership fees, beneficiaries contribution etc. Local research and extension priorities are set through Strategic Research and Extension Plans (SREPs) which are developed by using participatory methodologies such as Participatory Rural Appraisal (PRA).

In order to manage programme implementation at block level and below, ATMA has established a Farm Information and Advisory Centre (FIAC) at each block in the district. In effect, the FIACs act as extension planning and operational arm of ATMA. These are supported by two groups; one is a group of technical officers at block derived from different functional areas termed as Block Technology Team (BTT) whereas another is a Farmers Advisory Committee (FAC) which is a body exclusively of farmers. While BTT develops the Block Action Plans (BAPs) in light of the SREP and is responsible for its implementation, the FAC plays a more proactive role by scrutinizing, improving and approving BAPs, before these are referred to the ATMA GB for its final approval.

Commodity Interest Groups (CIGs) are promoted at block/village level to make the technology generation/ dissemination farmer driven and farmer accountable. These Village level CIGs are ultimately federated at block/district level and represented in FACs and GB. In order to address the extension needs of these groups, ATMA will establish close linkages with various players operating at cutting edge level viz. public, private, NGOs, Para extension workers, input dealers, etc.

In order to provide needed Human Resource Development support (HRD) in innovative areas of extension delivery a State Agricultural Management and Extension Training Institute (SAMETI) has been established either by strengthening one of the existing apex training institute in the state or by creating a new SAMETI in a State Agricultural University (SAU).

Project activities, at state level are closely monitored by an Inter-Departmental Working Group (IDWG) functioning under the Chairmanship of Agriculture Production Commissioner or Secretary (Agriculture) of the state. A Project Implementation Cell with State Nodal Officer(SNO) is created at the State Headquarter in the Department of Agriculture to provide support to the IDWG.

The scheme provides flexibility to the states to propose institutional framework similar, and not same as ATMA of ITD-NATP, suited to its own situations while preserving the key features of ATMA. The decentralized institutional framework proposed by the states should also be consistent with Article 243 G of the Constitution

Roles and Responsibilities of ATMA

ATMA is supported by Governing Board (GB) and Management Committee (MC). The Governing Board is a policy making body and provide guidance as well as review the progress and functioning of the ATMA. The Management Committee would be responsible for planning and executing the day-to-day activities of ATMA.

Composition of ATMA Governing Board (GB)

ATMA would be supported by Governing Board (GB) and Management Committee (MC). The Governing Board is a policy making body and provide guidance as well as review the progress and functioning of the ATMA.

Composition

1. District Magistrate / Collector Chairman
2. Chief Executive Officer (CEO) Chief Development Officer (CDO) Vice-Chairman
3. Joint Director / Deputy Director (Agri.) & allied departments Member
4. A representative from ZRS/ Krishi Vigyan Kendra Member
5. One Farmer representative Member
6. One Livestock Producer Member
7. One Horticulture Farmer Member
8. Representative of Women Farmers Interest Group Member
9. One SC / ST farmer representative Member
10. A representative of NGO Member
11. Lead Bank Officer of the District Member
12. A representative of District Industrial Center Member
13. Representative of Agriculture Marketing Board Member
14. Representative of input supplying Associations Member
15. One Fisheries / Sericulture representative Member
16. Project Director ATMA Member-Secretary-cum-Treasurer (Ex-officio)

Appointment / Nomination / Term of Members:

Non-official members of GB will be appointed for a period of 2 years by APC on the recommendation of the Chairman of GB.

Some initial appointments would be staggered to ensure that about two-thirds of the members would be carry over for an additional year on the GB.

Thirty per cent of the farmer representatives on the GB would be reserved for women farmers to ensure their interests are fully represented.

Key Functions of ATMA Governing Board

The key functions of ATMA Governing Board would be to:

1. Review and approve Strategic Research and Extension Plan (SREP) and annual action plans that are prepared and submitted by the participating units.

2. Receive and review annual reports presented by the participating units, providing feedback and direction to them as needed, for various research and extension activities being carried out within the district.
3. Receive and allocate funds to carry out priority research, extension and related activities within the district.
4. Foster the organization and development of Commodity Interest Groups (CIGs) and Farmers' Interest Groups (FIGs) to their federation within the district.
5. Facilitate the greater involvement of private sector, firms and organizations in providing inputs, technical support, agro-processing and marketing services to farmers.
6. Encourage agriculture lending institutions to increase the availability of capital to resource poor and marginal farmers, especially SC, ST and women farmers.
7. Encourage line departments, the KVK and ZRS, to establish farmer advisory committees to provide feedback and input into their respective R-E Programmes.
8. Enter into contracts and agreements as appropriate to promote and support agricultural development activities within the district.
9. Identify other sources of financial support that would help ensure the financial sustainability of the ATMA and its participating units.
10. Establish revolving funds / accounts for each participating unit, and encourage each unit to make available technical services, such as artificial insemination or soil testing, on a cost recovery basis moving towards full cost recovery in a phased manner.
11. Arrange for the periodic audit of ATMAs financial accounts; and
12. Adopt and amend the rules and bye-laws for the ATMA.

ATMA Management Committee (MC)

The Management Committee would be responsible for planning and executing the day-to-day activities of ATMA.

Composition:

1. Project Director of Agriculture Technology Management Agency Chairman
2. District Head of Dept., Agri. Member
3. District Head of Dept., Horticulture Member
4. District Head of Dept., Animal Husbandry District Head of Dept., Animal Husbandry Member
5. District Head of dept. Fisheries Member
6. District Head of Dept. Sericulture Member
7. District Head of other appropriate line deptt. Member
8. Head, Krishi Vigyan Kendra Member

9. Head, Zonal Research Station Member
10. One representative of NGO in-charge of Farmers' Organization Member
11. Two representatives of Farmer's Organizations (one year rotation basis) Member

Key Functions of Management Committee (MC)

The functions and tasks to be carried out by the ATMA Management Committee would include the following:

1. Carryout periodic Participatory Rural Appraisal (PRA) to identify the problems and constraints faced by different socio-economic groups and farmers within the district.
2. Prepare an integrated, Strategic Research and Extension Plan (SREP) for the district that would specify short and medium term adaptive research as well as technology validation and refinement and extension priorities for the district: these priorities should reflect during the PRA.
3. Prepare annual action plans that would be submitted to the ATMA Governing Board for review, possible modification and approval.
4. Maintain appropriate project accounts for submission to Ministry of Agriculture, Govt. of India.
5. Coordinate the execution of these annual action plans through participation of line departments, ZRSs, KVKs, NGOs, CIGs / FOs and allied institutions, including private sector firms.
6. Establish coordinating mechanisms at the Block level, such as Farm Information & Advisory Centres (FIACs) that would integrate extension and technology transfer activities at the block and village levels.
7. Provide annual performance reports to the Governing Board outlining the various research extension and related targets that were actually carried out.
8. Provide secretariat to Governing Board and initiate action on policy direction, investment decisions and other guidance received from the Governing Board.

Farm Information and Advisory Centre (FIAC) at Block Level

Under each ATMA, FIACs are created at the block level. It consists of two bodies namely Farmer Advisory Committee (FAC) and Block Technology Team (BTT). The FAC is a body of farmer representatives (11-15 members representing various Enterprises and socio economic strata). The BTT on the other hand is a group of technical advisors operating at block level representing agriculture and allied sectors. FAC and BTT, taken together, act as planning and operational arm of ATMA.

Block Technology Team (BTT)

It is an Inter-Departmental Team of Agriculture and line departments operating at block level. An indicative composition of BTT is given below, however, the composition would change from place to place depending on the critical areas pertaining to different states.

Composition

Block level officers of Agriculture, Horticulture, Animal Husbandry, Fisheries, Plant Protection, Veterinary Science, Soil Conservation, Extension, Sericulture, Cooperative, Marketing etc.

The senior most officials irrespective of the participating departments heads the Block Technology Team as BTT convenor.

Key functions of Block Technology Team (BTT)

The key functions of Block Technology Team would be to :¬

- Operationalize the SREP in each block and move towards single window extension system.
- Help district core team in up gradation of SREP.
- Prepare Block Action Plan detailing extension activities to be undertaken.
- Coordinate the implementation of extension programmes detailed in the Block Action Plan.
- Facilitate formation of CIGs/ FIGs at the block level and below.

Farmer Advisory Committee (FAC)

The Farmer Advisory Committee consists of 11 to 15 members covering different categories of farmers under the given block, with due representation to women farmers and weaker sections of the society. Typical composition of FAC which is given below may be suitably modified as per the agro-ecological situations.

Composition:

1. Farmer Agriculture
2. Farm Women Agriculture (SC)
3. Farmer Horticulture
4. Farm Women Horticulture
5. Farmer Live Stock Producer
6. Farm Women Live Stock Producer (SC)
7. Farm Women Mahila Mandal 8 Farmer Yuvak Mandal
8. Farmer Input Dealer
9. Farmer Farmer Group
10. Farmer BDC Member (Block Development Council)

Chairman shall be elected out of the above members on rotation basis. BTT Convenor also acts as Member Secretary to FAC.

Key functions of FACs

- Act as an agency for providing farmer feedback mechanism.
- Help set block extension priorities and recommend resource allocation across programme areas.

- Recommend Block Action Plan for approval of ATMA GB.
- Review and provide advise to each implementation unit at block level.
- FAC shall meet once in a month during the season and quarterly in lean season.
- Help in formation of Farmer Interest Groups at block level and below.

State Agricultural Management and Extension Training Institute (SAMETI)

The State Agricultural Extension Management and Training Institutes (SAMETIs) would be strengthened by way of providing support to training, communication, programs and equipments. SAMETIs are proposed to be autonomous institutes with greater flexibility in structural and operational aspects.

Key functions of SAMETI

- To provide capacity building support in Extension Management related areas to the extension functionaries both from public and private sector.
- To provide consultancy in the areas like project planning, appraisal, implementation etc:
- Develop and promote the application of management tools for improving the effectiveness of Agricultural Extension services through better management of human and material resources.
- Organize need based training programmes for middle level and grassroots level agricultural extension functionaries,: and
- Develop modules on Management, Communication, Participatory Methodologies etc, as a sequel to the feedback from training programmes.

State Level Inter -Departmental Working Group (IDWG)

In pursuance of the number of mechanisms built into the project design and to ensure effective coordination among the departments like agriculture, animal husbandry, fisheries, horticulture, soil conservation etc. it is proposed to constitute a state level Inter-Departmental Working Group under the chairmanship of the Agriculture Production Commissioner/ Secretary agriculture with the following composition:

Composition:

1. Agriculture Production Commissioner/ Secretary Agriculture Chairman
2. Secretary (Finance) Member
3. Secretary (Fisheries) Member
4. Secretary (Horticulture) Member
5. Secretary (Rural Development) Member
6. Secretary (Animal Husbandry) Member
7. Secretary (Soil Conservation) Member
8. Secretary (Women Development) Member
9. Secretaries of related departments (wherever necessary) Member

10. Vice Chancellor (s) of SAU(s) Member

11. Secretary (Agri.)/ Deputy Secretary (Agri.) / Member State Nodal Officer (SNO) Secretary

In departments like horticulture, soil conservation etc, where separate secretaries do not exist, Director of the concerned departments may act as a member on the interdepartmental group.

Key functions of IDWG

- To provide a mechanism for interactions with the Technology Dissemination Management Committee (TDMC) of the DAC, GOI, guide the human resource development activity and to monitor the district level technology dissemination programme.
- To oversee and support Agricultural Extension Research activities being undertaken by ATMA and to make policy interventions on inter departmental matters including issues related to Women in Agriculture and co-ordination thereof.

Process Intervention

Strategic Research and Extension Plan (SREP): One of the first tasks of ATMA like institutions is to facilitate the preparation of Strategic Research and Extension Plan (SREP) of the district. The SREP is prepared through participatory methodologies such as Participatory Rural Appraisal (PRA) involving all the stakeholders and farmers. The SREP contains detailed analysis of all the information on existing farming systems in the district and research – extension gaps required to be filled-up. It also prioritizes the research – extension strategies within the district. It becomes the basis for development of work plans at block/ district level.

State Extension Work Plan (SEWP): Based on the research-extension strategies given in the SREPs, block/ district level plans shall be developed by each ATMA like institutions. The State Extension Work Plan developed at state level shall contain a consolidated activity-wise plan incorporating all the District Agriculture Action Plans (DAAPs) in the state and state level activities to be carried out with activity-wise budgetary requirement as per the norms prescribed in the cafeteria. It will also indicate all other extension activities that may be undertaken from out of resources provided under any other scheme of the Centre/ State Governments. The DAAPs developed under the scheme should be processed consistent with Article 243 ZD of the Constitution.

Cafeteria of Activities : The Cafeteria includes cost norms and ceilings applicable for each activity. Under the Cafeteria, activities to be undertaken at State and District level are categorized separately. The state level activities include support for upgrading state level training institutions such as SAMETI, HRD of extension functionaries, organization of state level Agri-Exhibitions and Monitoring and Evaluation of the Scheme.

The district level activities are further categorized in four groups namely, farmer oriented activities, farm information dissemination, research-extension-farmer-market (R-E-F-M) linkages and administrative expenses. Farmer oriented activities include development of SREP, mobilization of farmer groups, training/ exposure visit of farmers, field demonstrations, all aimed at empowering the farmers and improving their participation in technology dissemination process. Under the category of farm information dissemination, local level agricultural exhibitions, information dissemination through printed materials and development of technology packages in electronic form are covered. The R-E-F-M linkages based activities include organization of Farmer-Scientist Interaction at local level, organization of Field-days and Kisan Goshties and support for local level researchable issues emanated from the SREP. The administrative expenses under district level activities provide support for running ATMA like Institutions and a few block level Farm Information and Advisory Centres.

It has been specified in the Cafeteria that funds for 'Farm-Information Dissemination' category can't exceed 20% of total resources available for district level activities under the Scheme. These percentage for 'REFM Linkage' and 'Administrative Expenses' categories are 15% and 20% respectively. Any savings in any of these three categories could be utilized for 'Farmer-Oriented Activities'.

The cost norms and ceilings may be exceeded by a maximum of 10% of the specified amount in exceptional circumstances by a local decision. All such cases shall have to be reported in the next year's Work Plan and shall be subject to ex-post guidance. Any other deviation from the prescribed norms/ ceilings or any new activity not specified in the Cafeteria could be taken up by States with prior approval of the DAC.

The sum total of all activities specified in the cafeteria is more than the funds likely to be available for State/ district level activities. States will have to prioritize their proposed activities based on gaps identified in the SREP.

Farming Systems Approach (FSA)

Concept

Farming system is an integrated set of activities that farmers perform in their farms under their resources and circumstances to maximize the productivity and net farm income on a sustainable basis. The farming system takes into account the components of soil, water, crops, livestock, labour, capital, energy and other resources, with the farm family at the centre of managing agriculture and related activities.

The farming system conceptually is a set of elements or components that are interrelated which interact among themselves. At the center of the interaction is the farmer exercising control and choice regarding the types of results of interaction. The income of cropping alone from small and marginal farm is insufficient now to sustain the farmers' family. A judicious mix of any one or more of these enterprises should complement the farm income and help in recycling the farm residues / wastes. The selection of enterprises must be based on the cardinal principles of minimizing the competition and maximizing the complementary between the enterprises. Of late, the researchers on multi disciplinary approach greatly realized and started developing the various farming systems models in accordance with the agro-eco systems zones.

Thus the concept of Farming System Approach can be summarized as it is a holistic approach, complex in nature; interrelated matrix of soils, plants, animals, power, implements, labour, capital and other inputs; influenced by political, economic, institutional and social forces.

Need for Farming Systems Approach

The need for Farming Systems Approach in the present scenario is mainly due to high cost of farm inputs, fluctuation in the market price of farm produce, risk in crop harvest due to climatic vagaries and biotic factors. Environmental degradation, depletion in soil fertility & productivity, unstable income of the farmer, fragmentation of holdings and low standard of living add to the intensity of the problem.

What it is and What it does

It is an approach for developing farm-household systems, built on the principles of productivity, profitability, stability and sustainability. All the components are complimentary and supplementary to each other. The farming system approach emphasizes understanding of farm household, community inter linkages, reviews constraints and assesses potentials. And it combines improvements desired from better technology. It needs efficient support services and requires better policies. It is continuous, dynamic and interactive learning process based on analysis, planning, testing, monitoring and evaluation.

Why Farming Systems Approach

To develop farm – house hold systems and rural communities on a sustainable basis

To improve efficiency in farm production

To raise farm and family income

To increase welfare of farm families and satisfy basic needs.

An intensive integrated farming system addresses two issues, reduction in risk with the monoculture activities and promoting enterprise diversification and value addition and development of alternative income sources with efficient utilization of farm resources. And it brings about enterprise diversification for sustainability and additional benefits, better management of important farm resources like land, labor and capital etc. Provides an opportunity for effective recycling of the product and by-products, helps to generate flow of cash to the farmers round the year by way of disposal of milk, fruits, fuel, manure etc., beside other agricultural output.

Farming Systems Strategy

In view of serious limitations on horizontal expansion of land and agriculture, only alternative left is for vertical expansion through various farm enterprises required less space and time but giving high productivity and ensuring periodic income specially for the small and marginal farmers located in rainfed areas, dry lands, arid zone, hilly areas, tribal belts and problem soils.

The following farm enterprises could be combined:

Agriculture alone with different crop combinations

Agriculture + Livestock

Agriculture + Livestock + poultry

Agriculture +Horticulture + Sericulture

Agro-forestry + Silvipasture

Agriculture (Rice) + Fish culture

Agriculture (Rice) + Fish + Mushroom cultivation

Floriculture + Apiary (beekeeping)

Fishery + Duckery + poultry

For meaningful execution of integrated farm-enterprises, the following activities should be undertaken by a multi-disciplinary team of extension professionals with farmer's participation and involvement at all stages.

- Thorough understanding of existing farming systems and their components
- Assessment of resource availability in the farm environment and identification of bio-physical, socio-economic, institutional, administrative and technological constraints
- Developments of economic viable and efficient integrated farming systems suitable for various domains
- Diffusion of improved technology and receiving 'feed back' for further improvement of the system as a whole.
- Continuous improvement in components technology to fit into a given farming system
- Improvement in quality of farming system
- Research Extension linkage through "On farm Adaptive Research"
- Development of National and International linkages

Farming Situation-based Extension (FSBE)

A major challenge in Indian agricultural development in the present decade and beyond lies in the effective involvement of farmers in the extension and research programs. The continued stress is more on developing procedures or methods that encourages farmer's participation in planning and management of above programs. Involving farmers in the process of technology development can develop appropriate recommendations specific to crop situation. This requires major changes in the attitudes, approach and role of researchers and extensionists. As such an approach which provides active participation of farmer- researcher and extensionists in developing a modified or fine tuned technological recommendations specific to crop situation has been attempted through "Farming Situation Based Extension.

Farming Situation Based Research and Extension: Under this option the entire area of the NARP zone is divided into number of situations based upon important factors namely variation in rainfall, soil type and source of irrigation. Variation in soil type in terms of structure, texture, soil depth, soil reaction, drainage, landscape and variation in moisture regime linked with both rainfall and irrigation are the major considerations in delineating situations. Based on this factors different farming situations are mapped in each NARP zone. As an example in southern Telengana zone a total of 18 farming situations have been identified keeping in view the variability in above factors

Crop / Commodity Based Research and Extension: For applying this concept one crop or commodity at one time is a basis to proceed at the field level. It has been observed that each commodity is grown under a number of farming situations in a zone. The factors which determine the farming situation of a commodity includes not only the three fixed variables indicated above (rainfall, temperatures and soil) but also includes some of the flexible variables namely time of sowing, previous crop, source of irrigation, soil borne problems etc. These additional flexible variables also require situation specific approach with regard to development of technological package or extension of new technologies. When such factors are taken into account even a single village or even a single farmer may have more than one situation of a given commodity. It may however be mentioned a particular crop available with different farmers or different village within a NARP zone may still require a uniform technology and hence would not create a unmanageable circumstances.

In the light of the above mentioned facts MANAGE initiated a specific method "Farming Situation Based Extension" for participatory planning of extension activities. In this method the crop / commodity situation in which it is grown is taken as the basis for resynthesising the blanket technological recommendations rather than an area as a whole. The crop situations are delineated with the agronomic factors like sowing time, previous crop, source of irrigation (canal, tank, well) soil borne problems etc. The variations in these micro level agronomical factors leads to different crop culture and demands for a modified / refined technological package rather than a standardized technological package. The main features of this approach are as follows:

- Analysis of major situations of a crop (within a given agro-climatic zone)
- Re-synthesis of the technological package of the crop (under each crop Situation) through a joint effort of researchers, extensionists and farmers
- Assessment of gap in the adoption of technology and using it as the basis for working out the required extension strategy

Gap analysis for Planning of Extension Strategy

Under the top-down approach, recommended package of practices is considered as the ultimate basis for technical planning of demonstrations and training programs. It has been observed that in many cases yield under the demonstration plots has not been found to be significantly higher than the yield of plots, which are outside the demonstration plots. This kind of experience has often created an impression that the improved technology does not appear to be promising under the farmers' field condition.

A critical analysis of the situation has, however, revealed that 70-80 percent of the inputs used in the demonstration plots are similar to those, which are used by farmers outside the demonstration plots. This partly explains the reasons for lack of desired results from the demonstration plots. Similarly in the training program there has often been a tendency (on the part of the trainers) to talk about the full package of technology of a given crop without any consideration to the existing level of its adoption by participating farmers. Such a situation creates disinterest among trainees / they are practicing farmers since a part of the technical content is already known.

Needless to mention, participatory approach for planning of extension strategy is crucial to overcome the above limitations. Under this approach 'gap in adoption' (rather than improved technological package) becomes the ultimate basis for planning of extension strategy. The details regarding the application of above approach has been discussed below:

Situation based participatory extension methods: The extension program can broadly be divided into the following two groups:

- The development programs eg. , NWDPRA, NOP, NPP etc.
- General extension progamme eg.T&V

Farmers' Organizations

Farmers Organizations are seen as a useful organizational mechanism for mobilizing farmer's collective self-help action aimed at improving their own economic and social situation and that of their communities. Considering this factor there is a need for not only providing credit to the groups but also as part of an overall management of financial resources and also agriculture and allied sector development in a sustainable manner, leading to empowerment of the members of farmers groups. Such organizations were perceived to have an ability to generate resources from their members. They could operate at different levels from the local to the national and from adaptive research and extension through the overall technology priority setting and form multiple linkages with the technology and marketing systems.

Promotion of Farmers Interest Groups

Everywhere in the world, a limited number of farmers are collaborating with each other in some way or the other – forming groups for sharing of information and working together. Under the right circumstances, farmers' groups can make a very positive difference to the lives of those working to improve their livelihood options, as well as to the sustainable development of agriculture.

Groups of farmers who come together spontaneously or through their own efforts to answer their own felt needs are more likely to be effective than groups that are brought together to suit the needs of an external agency. These groups/ associations last only as long as the project period. Their cohesion and motivation often lie in material and financial considerations. Spontaneous and voluntary formation of social groups involves a high degree of trust. This is one reason why community groups are often formed around one strong personality, and is formed due to some immediate issue.

There is an important difference between farmers or communities that organise themselves to work together, and farmers being organised in groups by external actors who see this as a vital step and entry point for community development. External agencies often view the creation of organisations as a positive intervention, a way of increasing impact and sustainability of activities. Farmers and communities often do benefit from participating in such projects through gaining access to trainings, information, resources and further linkages. However, groups formed in this way are typically more prone to difficulties at the start and there is a risk they will not continue if or when the initiating institution withdraws from the project. Alternatively, where previously established local groups gain the support of external agencies, this arrangement can be very positive. A key challenge for facilitating agencies is then to act as catalysts and bring out the self-organising capacities of farmers in the most locally relevant and useful way. However, as groups develop and find their own strength, the external agencies then need to consider the different type of support groups may need.

Stages of group formation:

Broadly there are four stages in organization of group as indicated below.

Forming – When the group members enroll themselves and conduct 1-2 initial meetings

Storming – When the group members start discussing and reacting to the various issues / conflicts

Norming – When the groups start framing norms to run it successfully

Performing – When the group starts performing by lending money and collecting it back, involving in developmental programmes, management of inputs and output, marketing, etc.

Guidelines for Formation of Farmers Interest Groups (FIGs)

- Identify existing farmers and commodity interest groups with the help of identified group promoters.
- Identify number of eligible farmers who are now willing to get organized into new group.
- Organizes informal meetings with prospective group members to discuss the purpose, methods of operation and benefits of groups, as well as possible enterprises/ activities.
- Farmers groups may be formed on the basis of common needs, common problems, common interest, similarity in commodity, small holders, social affinity, homogeneity in socio-economic status and neighbourhood etc.
- Encourage rotation of leadership positions among group members in order to give all members leadership experience to all the members.
- The optimum number of farmers in a group may be 20-25.
- Each farmers group may select a convener and co-convener who shall jointly operate the bank amount.
- Each farmer shall pay Rs. X/- as membership fee.
- Likewise, each farmer shall have a common fund in the group availability of certain financial incentives to FIGs.
- Organize farmers group with the help of locally-available/ identified community organizers/ group promoter.
- During the initial period of 6-9 months, the members may be encouraged to develop common fund and to take small amount of loan at a reasonable rate of interest as decided by the group. This shall help them in developing a habit of repaying the borrowed amount in different installments. This type of modality shall help in developing solidarity in the group.
- Promoting agricultural and allied enterprises and developmental programmes through FIGs.
- Group promoters make a list of potential group members and leaders, possible group activities and required inputs
- Assess their productive resources, including capital, skills and experience
- Promote agricultural and allied enterprises through FIGs along with market interface.
- Prepare FIGs annual and seasonal action plans and group promoters may consolidate plans at village level.
- Maintenance of records and registers at groups like resolution books, account books, individual pass books etc.
- Ranking/ grading of the above FIGs may be done after 6-9 months. At that stage, only mature FIGs may be given external or project benefit, revolving fund, etc. The remaining FIGs may be further

strengthened with the help of group promoter. Later these FIGs may also be given the revolving fund as and when they get maturity. Proper criteria may be used for assessing the maturity of FIGs. At this stage, special care may be taken not to break any of the existing group, just because of

The formation of viable and stable groups requires patience and, in most cases, a period of two to six months. Both rapid formation and long delays, may dampen the interest of potential group members. The process of group formation may face formidable obstacles. In most of the cases, the rural poor are economically dependent on landowners, traders and middlemen and may fear intimidation if they are involved in independent peasant organizations. Local leaders who may see the groups as a threat to patron-client relationships pose other constraints. Extension functionaries may help to overcome this antagonism by organizing meetings to sensitize leaders to the objectives of the project and, above all, to illustrate the benefits of its activities to the area as a whole.

Group activities

Groups are formed around activities that can meet the identified priority needs and aspirations of those who wish to become members. The purpose of these activities is primarily economic and developmental like increased members' production and income, reduced costs, financial self-reliance and contribute to community welfare. Although group activities vary widely, four general types can be distinguished:

- Direct income-raising activities. Groups may intensify production of food or cash crops develop small-scale animal husbandry, aquaculture or agro-processing, build small-scale, irrigation, drainage or anti-erosion systems. Other activities include development of low-cost storage, transport and marketing facilities, supply points for inputs, etc.
- Cost-saving activities. These include activities that reduce production costs, such as bulk purchasing of inputs, group transport and marketing of products, and consumer savings through joint purchasing of consumer goods in bulk. Groups might also benefit from social savings - e.g. group agreement in Common Property Resources (CPRs) - and social insurance through group welfare funds.
- Production-facilitating activities. These include consolidating members' holdings for joint production, cleaning irrigation canals, social fencing and social regulations in CPRs building or repairing roads, and village electrification. At the political level, groups might lobby for enforcement of land reform laws and others.
- Community development activities. Many groups undertake social and cultural activities in the fields of health and sanitation, education and family planning. In many areas there is an acute need for group action to promote better nutrition improved food storage, and install clean water supplies.

Groups are encouraged to undertake social or community improvement activities only at a later stage. It is important that as far as possible each group identifies, plans, carries out and evaluates its own activities. This is essential for group development and eventually self-reliance. While group promoters have an important role in encouraging group activities, especially in the initial stages, facilitating role will be reduced gradually as the groups develop.

Grading of FIGs

Based on the maturity criteria the groups are graded into ABCD categories

Maturity criteria

- Regularity in meeting
  - Good attendance (> 80%)
  - Good recovery (> 90%)
  - Proper maintenance of records and accounts
- Fine for absentees, late comers or those who delay in payment of dues
- Involvement in development of agriculture, allied sector and rural developmental activities.

Once the group fullfills all the above criteria considered to be matured group - "A Grade" and such matured groups, which are in "A" grade, are eligible for involvement in developmental programmes. The B,C,D grade groups needs capacity building to become "A" grade group.

Group promoters

The Group Promoter (GP) is a key agent in the success of any participatory project. He or she works with the farmer, building up their confidence in their own abilities and promoting their self-reliance. As this work must be done without creating dependency, the GP's task is essentially that of an intermediary, with three basic roles:

– Group adviser, strengthening the groups' leadership, organizational and planning capacity

– Participatory trainer, teaching basic technical, literacy and problem-solving skills to the groups

– "Link person", facilitating communication between the groups, government, NGO's and other development services Experiences show that one group promoter can help to organize an average of 15-20 groups.

GPs must have experience in working with people and local organizations in rural areas, and familiarity with the problems of the farmer. It is essential that candidates have a strong commitment to live and work with the farmer.

GPs promote self-reliance by involving the group members in activities that allow them to develop leadership and record keeping skills. They encourage group-to-group exchanges, and ensure the presence of one or more group members whenever they deal with supporting institutions such as banks and delivery agencies. It takes three to five years for groups to achieve complete self-reliance.

Once groups have established a sound economic base, then we can promote their consolidation into local-level inter-group federations. These federations promote solidarity and economies of scale both in group activities and delivery of developmental services. Development of local and, eventually, regional and national structures also stimulates formation of more groups. An inter-group federation must be accountable to all group members. It has a facilitating; coordinating and educational role as a source of technical assistance, economies of scale and guidance. For instance, a federation can offer training to FIGs on new technology, credit linkages, storage value addition, marketing of produce etc.

Research – Extension – Farmer - Market Linkage

Over the past few decades, the major sources of agricultural growth have been diffusion of modern varieties, intensification of input usage and investment in irrigation. In areas where green revolution has had its major impacts, growth from these sources is now slowing down. Now latest technologies are needed to push out the yield frontier, utilize the inputs more efficiently, diversify to more sustainable and higher value cropping patterns to realize more farm income. These knowledge intensive technologies require strong research - extension – farmer and market linkage mechanism to achieve the desired results. The links between research, extension and farmers often tended to weaken over the time. Lack of a close working relationship between agricultural research and extension organizations, and with different categories of farmers and farm organizations, is one of the most difficult institutional problems. This ineffective link between research and extension "has impeded the development and transfer of technology appropriate for small-scale, resource-poor farmers, particularly those who work in relatively low-potential, heterogeneous agro-ecological areas" (Ewell, 1989) Problems in technology development and transfer functions arise because these functions are treated in isolation (World Bank, 1985). According to a World Bank report, "bridging the gap between research and extension is the most serious institutional problem in developing an effective research and extension system."

Linkages can be classified into three types

Production Linkages: to maintain regular flow of information from its source to the client system through govt. and non govt. agencies including input supply and services.

Technology Generation Linkages: to develop new technologies to meet the emerging problems faced by the client system as well as contingency measures to manage pest outbreaks and natural calamities

Post Production Linkages: with marketing agencies both for domestic and export markets to dovetail the products and services to suit the consumer preferences. Linkages with storage, transportation, packaging, agro-industries helps for value addition.

Linkages with various commodity interest groups to identify the bottlenecks and get the feedback to improve the efficiency at all levels.

Role of KVKs in Agricultural Extension

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 was more of "Informative Extension" than "Emancipatory Extension" which was more common among socialist and Christian traditions. One can find several ideas on what is agricultural extension. It is a process to assist farm families to make decisions through which they reach their goals as good as possible.

In India, the extension 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. Thus, KVKs are attaining the focal point for front line transfer of technologies for all developmental activities related to agriculture, community and industries in rural India. A total of 630 Krishi Vigyan Kendras established across the country.

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, the 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 foreseeable future exerts more pressure on their performance and hence the expectations run higher.

Perspective of Farmers' Training and their Capacity Building

KVK as an effective extension organization for dissemination of desired agricultural knowledge and information on Agriculture extension as an HRD innovation has been spreading in recent years. The primary goal of agricultural extension is to assist farm families in adopting their production and marketing strategies to rapidly changing social, political and economic conditions so that, they can, in the long run, shape their lives according to their personal preferences and those of the community. The task of extension, thus, is to improve interactions among the stakeholders within the Agricultural Knowledge System (AKS), so that the farmers have optimum access to any information that could help them enhance their economic and social situation.

KVK for knowledge and skill building among farmers through training

In the process of reaching farmers, farmwomen, agriculturists, horticulturist, animal husbandry entrepreneurs, home makers etc., KVK activities are likely to break the progressive farmer bias that is prevalent in the extension activities of other developmental departments.

In the long run, training is the key to bring about the necessary changes in individual attitudes. Favourable attitudes towards technologies disseminated by the KVK result is not only early acceptance of these technologies but also continued adoption over a period of time. Spread of knowledge of technologies from participants to their friends / neighbours and relatives is more purposeful when the participants are strongly convinced of the utility of such technologies. While transfer of knowledge, component of technologies, both to the participants and from the participants to the second generation users is earlier, same is not true with the acquisition and transfer of skills. Therefore, 1:3 ratio of theory and practicals is suggested for skill training. In view of the sophistication of modern farming, as also the low level literacy in rural areas, skill training of the farming community has become imperative.

Role of Scientists in Farmers' Training through On-Farm Testing (OFT) and Front Line Demonstrations (FLD)

On-Farm Testing for Appropriate Location Specific Technology

These are conducted on the farmers' fields on such problems where the appropriate technologies are not available for particular agro-climatic situation to transfer, and the relevant research information available does not suit the situation from the point of view of the farmers. The main objective is to give overriding importance for farmers' perspectives and participation at all the steps of on-farm testing viz., problem diagnosis, planning, experimentation and extrapolation. On-farm testing facilitates validating and refining location specific technologies and also updating the grass root level extension workers with the latest agricultural technologies.

The importance of location specificity in development of appropriate technologies, keeping agro-ecological, socio-economic and cultural parameters in view, is gradually being appreciated. This has paved the way for technology assessment in different micro-environments and its refinement to suit varied situations, through participatory approaches. This is worked out through Institute-Village Linkage Program (IVLP).

KVK as forerunner of conducting Frontline Demonstrations

Demonstration is central to formal education as it is based on the principle of seeing is believing and could be a powerful tool to work with low literacy level farmers groups. Because, it provides a visual evidence of the superiority of the recommended technology under farmers' own conditions (Nagaraja, 1995). Frontline demonstrations prove the productive potential of new technologies on the demonstrated technologies and serve as a platform to train farmers and field extension functionaries on the crop production practices.

Importance of these demonstrations could be easily grasped by the crisis the country is facing in terms of stagnation in the productivity of major crops and the difference in the productivity level of major crops

compared to other nations. For example, in 1991, India was ranked 27th in the world in productivity of rice and its ranking in 2000 is a pathetic 51st position. Similar is the case with most other crops.

KVK as coordinator among Extension Organizations and promoter of Extension functions

Services to farmers should not be expected from a single organization and through same channels. The actors (the various extension organizations) engaged in farmers services are many like, KVKs, State Department of Agriculture, Extension Directorate of State Agricultural Universities, NGOs, Private Agri-Business Houses and Farmers Organizations etc. All provide the services to the farmers without involving or collaborating with other actors often resulting in duplication of services to same clients, loss of time, energy, inputs, deprivation of services to some and more importantly no desired impact. Hence, it is essential to have their coordination role among the extension organizations to attain the objectives as expected.

Public – Private Partnership

Conceptual Framework

Over the last one and half decades, the globalized market forces and competition from local and international competitors have increasingly compelled the public and private systems to seek strategic cooperation and partnership to compliment their business, social and developmental goals. The public private partnerships for Indian agricultural development, particularly in the post WTO scenario can no longer remain a developmental fad and therefore, recognized a promising approach to achieve agricultural advances for Indian farmers.

The public extension system is undergoing a transition due to financial constraints, inadequate manpower availability, inadequate knowledge base and accountability among the public extension system functionaries. On the contrary, the private extension system has very limited reach in terms of farmers' and crops, covering limited geography, services provided on payment basis with inadequate network to reach out to all the farmers.

Under such circumstances, the supplemental efforts with plurality of institutions like Public Extension System, NGOs, Farmers' Organizations, Para Technicians, Agri Business Companies and Corporate Houses, Cooperatives, Input Dealers, Self Help Groups (SHGs) etc. has become a necessity to augment the supply of quality input and services to the farmers serving entire agri value chain. In view of this, Government of India has laid adequate focus on evolving pubic private partnership for agricultural development while implementing the Agricultural Extension Reforms Agenda as delineated in the National Agriculture Policy.

Partnership Defined

The term public private partnership in the present context is necessarily a collaborative effort between the public and private sectors contributing for one or more functions like planning, resources and activities as required to accomplish a shared goal set out by the partners. The public and private partnership may occur at any one or more stages in the process of extension, production, procurement, processing, marketing etc. depending upon the stated objectives of partnership.

Defining Agri Value Chain

Any collaborative effort between partners necessarily has to combine all the elements in the agri-value chain as explained in the diagrammatic representation given below;

Input	Partners	Processes
• Manpower resource • Financial resource • Infrastructural resource • Skill, knowledge & advisory resource • Time resource • Agricultural input and other service resource	• Govts. (Centre /State) • NGOs • Corporate Sector • Cooperative Sector • FIGs & FOs, SHGs, FFs, Farmers • Public & Private	• Relationships among various stakeholders in different combinations through formal / informal / written (MOUs, Formats etc.) arrangements • Around one or more defined functions in the agri value chain on the continuum of seed to money

Input	Partners	Processes
	Financial Institutions, Insurance Companies	• Proportionately sharing the output, which may be in terms of profit or loss, social responsibility, professional and personal satisfaction, fulfillment of corporate and official obligations etc.

Output

- Necessarily the direct and instant output has to be the monetary benefits to the farmers and other partners
- The other outputs or its byproducts may be upgradation of natural resources, economic viability, environmental sustainability and social accountability

Role of Public System

- The role of public system may range from Facilitator – Stakeholder – Partner in the enterprise
- As long as public system participate, contribute or facilitate in the chain of input-partnerprocesses-output, it may be considered as partnership
- To begin with, public system even need not be a shareholder in profit as the intention of the Government is to help farmer realize higher income
- Even if two corporates come together for any venture through which farmer is benefited with the facilitation of public system, it would still be considered a public private partnership

The various stakeholders in agri value chain can be classified into three major categories viz., public sector, private sector and group of farmers and their partnership in any enterprise necessarily should result in benefiting farmers. This nature of relationship is exemplified by citing few cases of partnership in the following table;

S. No.	Nature of Relationships	Examples
1.	Public and Public	Andhra Bank has entered into an MOU with the National Collateral Management Services Ltd (NCMSL), promoted by the National Commodity & Derivatives Exchange of India (NCDEX) for providing loans against farm produce
2.	Public and Private	State Bank of India has signed an Memorandum of Understanding with Dabur India to finance farmers for cultivation of medicinal and aromatic crops in Uttaranchal under contract farming arrangement. Food Bazars of Pantaloon has entered into an understanding with NAFED for supply of onions to its grocery retail outlets. 34 such outlets are made operational.

3.	Public and Individual / Group of Farmers	Agricultural Technology Management Agency (ATMA), Chittoor has facilitated the District Poultry Association to reach an understanding for purchase of Maize from the growers. The Poultry Association given a written agreement to purchase the maize at Minimum support price of Rs.485 per Quintal. The Poultry association also agreed to supply 2 MTs of poultry Manure free of cost to the maize growers. To boost up the Maize crop, ATMA, Chittoor has supplied Maize seed free of cost to an extent of 400 acres in Kharif, 2002 and for 1000 acres in Rabi, 2002-03, as an incentive. Technical support is also given by the ATMA and Block Technology Team (BTT) Officers for cultivation of Maize.
4.	Private and Private	The Morarka Rural Research Foundation in collaboration with Narco Exports, is to bring 37 varieties of organic farm produce from the Shekhawati region in Rajasthan to Delhi and the National Capital Region (NCR). Their retail outlet, Food Shoppe in Gurgaon will also stock vegetables, fruit, pulses, cereals, oilseeds, spices and herbs from the Shekhawati's organic farms. To tap the niche market, the Foundation is planning to make the organic produce available at the doorsteps of the consumers on a weekly basis under a 'Box Scheme'. **Excel Crop Care and Parle Group** has come together in Bheraich district of UP where Excel Crop Care under **Excel and Me Programme** provide input and advisory services to the farmers through Village Agriculture Practice and Parle finally purchase the produce from these farmers.
5.	Private and Individual/Group of Farmers	**Excel and Me** of Excel Crop Care Ltd. launched the concept of FSA integrated crop management and pest management discouraging mindless use of chemicals, combining indigenous and exogenous technological knowledge. 251 villages are covered all over India and the farmers are provided necessary support in terms of timely advice, inputs or services by Village Agriculture Practitioner (VAP) who hails from the local area and trained in participatory training techniques. The services by VAP includes conduct of soil health camps and soil analysis reports are supplied at the door-step of the farmer. The knowledge sharing portal for VAP and others is created to post, share and access the data and knowledge online.

In any given partnership venture, it is quite possible that two or more stakeholders (of the three viz., public, private and group of farmers) may come together in different combinations based upon the interest and need of the partners.

In order to understand the concept of partnership, one needs to make a distinction between the programmes carried out by the Governments (public system) for the benefit of the farmers without any contribution in cash or kind from them. It is basically a supply driven model. Any supply driven model theoretically cannot be conceived as partnership. The partnership necessarily has to meet the parameters on supply – demand continuum. Hence, the Government programmes and projects where group of farmers contribute to avail services may still be viewed as public private partnership.

Management of Public-Private Partnership in Agriculture Extension

Private Extension Cell At State Level

Private extension cell is the nodal agency situated at Directorate of agriculture responsible for effective implementation of public-private partnership mode of extension delivery system in the state.

A nodal officer familiar with handling of Agricultural extension management shall head the cell.

Role of Private Extension Cell (PEC)

(a) PEC shall be the liaison between the state department of Agriculture and PESP.

(b) Promotion of private extension activities and partnership mode of extension delivery system.

(c) Regulation of PESP activities.

(d) Analysis, monitoring and evaluation of PESP work.

(e) Certification of PESP work based on their performance.

(f) Introduction of Innovation in private extension activities and partnership mode of extension delivery systems.

Structure of Private Extension Cell

The cell shall have nodal officer assisted by technical and statistical assistants. The secretarial technical staff consists of steno cum computer operator, LDC and peon. The cell shall be provided with vehicle and telephone facility.

Certification Procedure

Certification process aims at assessing the PESP based on their performance which enable the government to promote good PESP and to discourage the bad one's.

The certificates are issued to PESP's on yearly basis by a group of three member committee consisting of nodal officer of the PEC, a representative of MANAGE and another expert in the field of Agricultural extension management.

The performance of the PESP's is assessed based on the evaluation reports of permanent Agriculture committees, monthly report of nodal officer at district level and bi- monthly meeting of nodal officers at state level. Beside, there is also scope to include the observation of certification group.

The PESP's are classified into five groups based on their performance and observations of the certification group, as follows.

A grade PESP - Excellent

B grade PESP - Very good

C grade PESP - Good

D grade PESP - Satisfactory

E grade PESP - Poor

The MOU with the E-grade PESP shall not be renewed and are not eligible to enter into partnership for next two years. D grade PESP shall be given one year time to improve their performance. A, B, and C grade PESP's are allowed to continue. The government shall prefer better-graded PESP's for future partnership mode extension delivery systems.

The cell also assess the overall impact of partnership mode of extension delivery system in terms of cost saving to Government, accountability and efficiency of extension service.

Roles and Responsibilities of Nodal Officer (District Level)

(a) MOU provides the framework and direction, but, nodal officers are responsible for implementation of MOU.

(b) Nodal officers shall be located at district headquarters, maintain constant liaison and meet in the last week of every month.

(c) The meeting shall be attended by other officials/PESP personal, if necessary.

(d) The meeting shall focus on review of activities, problems faced and ways to overcome the obstacles in implementation of partnership mode of extension delivery system. If necessary, they shall contact their respective state heads and sort out the issues.

(e) The meeting shall also workout the plan of activities for the next month, problems and ways to overcome them. If necessary, they shall contact their respective state heads and sort out the issues.

(f) Preparation of reports on monthly meeting jointly and sending to their respective state heads.

(g) Ensuring adequate finance and other support to grass root level functionaries by respective nodal officers.

(h) Ensuring proper co-ordination through mutual consultation.

(i) Supervision of activities jointly.

(j) Handling of joint account.

Co-ordination Mechanism

(a) The MOU is worked out by MANAGE in consultation with director of Agriculture and state head of PESP.

(b) Orientation programmes are conducted by MANAGE about the partnership mode of extension delivery system to officers, grass root level workers of PESP, department and farmers to create understanding.

(c) Co-ordination through monthly meeting by nodal officers of PESP and department at district level.

(d) Supervision of implementation of programme jointly by PESP and department nodal officer at

district level.

(e) Their grass root level workers send the report of the activities to their higher officers.

(f) Bi-monthly review meeting would takes place at state level between the PESP and department head.

(g) Pre-season planning by department head at state level in consultation with PESP state head.

Operation of Joint Account

(a) Joint account shall be opened by both nodal officers at district head quarters.

(b) The joint account shall act as a corpus fund which would be utilized to ensure the sustainability of partnership mode of extension delivery system, promoting innovation in Agriculture extension and to improve the efficiency of extension services delivered. This fund will be utilized for rejuvenation of public extension in the event of withdrawal of PESP from MOU.

(c) Fund in the joint account could be used in the following situations.

(i) 50% of the fund can be used in the event of non-renewal of MOU, in situation where government has to take over the infrastructure back and make it functional.

(ii) 25% of the fund can be used on promotions of any innovations in Agriculture which does not have fund support from government and PESP.

(iii) 25% of the fund can be used in any contingency situation.

Regulatory Mechanism

The activities of PESP shall be under the close observation of private extension cell. Activities of PESP such as non co-operation, indiscriminate propagation of commercial interest, suppression of Agriculture information meant for dissemination, sale of spurious inputs, cheating, use a government name for anti- farmer activities would be taken note of and a penalty equivalent to the damage would be levied on the PESP as found guilty after enquiry. These activities of PESP shall be taken into consideration while renewing MOU. On the other hand, good work of PESP activities will be recognized through good grade during certification.

Participatory Planning in Partnership mode of Extension Delivery System

(a) Participatory planning before every season serves as a basis for planning agricultural extension activities for the season.

(b) The process takes the existing conditions, farmer aspirations and expert opinion into consideration while planning for the season based on which extension activities would be planned.

(c) The participatory planning takes place before the season with the farmer/farmers leaders facilitated by Agricultural expert, PESP and department resulting in a district research extension marketing plan.

(d) Such plan serves as a basis for the nodal officer in the monthly meeting while planning for the Agricultural extension activities of the month.

(e) The process ensures the integration of resources available, aspirations of farmers, expert advice and establish effective link between research-extension-marketing.

Gender Mainstreaming and Gender Sensitization

Both women and men play critical roles in agriculture throughout the world, producing, processing and providing the food we eat. Rural women in particular are responsible for half of the world's food production and produce between 60 and 80 percent of the food in most developing countries. Yet, despite their contribution to global food security, women farmers are frequently underestimated and overlooked in development strategies.

Rural women are the main producers of the world's staple crops – rice, wheat, maize – which provide up to 120 percent of the rural poor's food intake. Women sow, weed, apply fertilizer and pesticides, harvest and thresh the crops. In the livestock sector, women feed and milk animals, while raising poultry and small animals such as sheep, goat, etc. Also, once the harvest is in, rural women provide most of the labour for post-harvest activities, taking responsibility for storage, handling, processing and marketing.

Despite the fact that women are the world's principal food producers and providers, they remain 'invisible' partners in development. Lack of available gender disaggregated data means that women's contribution to agriculture in particular is poorly understood and their specific needs ignored in development planning. This extends to matters as basic as the design of farm tools. But women's full potential in agriculture must be realized if the goal of the 1996 world food summit – to halve the number of hungry people in the world by 2015 – is to be achieved.

What is Gender-Mainstreaming?

Gender Mainstreaming is a process rather than a goal. Efforts to integrate gender into existing institutions of the mainstream have little value for their own sake. We mainstream gender concerns to achieve gender equality and improve the relevance of development agendas. Such an approach shows that the costs of women's marginalization and gender inequalities are born by all.

Gender mainstreaming is "the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality"

Gender-sensitivity

Gender sensitivity encompasses the ability to acknowledge and highlight existing gender differences, issues and inequalities and incorporates these into strategies and actions.

Farm Women and Technology

Women badly need labour-saving technologies to be developed in food-processing and storage as well as food production and related matters such as water, sanitation, fuel and food preparation. But all too often women's voices are ignored when research priorities are set, and their needs are not addressed.

A recent gender-based study of the use of hand implements by farmers in Africa revealed a telling situation. "It is weeding that almost kills the women" said one male farmer, pointing out the need for lighter tools. Another

added: “We buy the hoes and tools, and when they get worn, we pass them to the women.” The situation was summed up by a member of a women’s group in the country who said, “Our men never know or learn of our needs”. Tools that relieve women of unpaid drudgery are unlikely to prove as profitable as tools that replace their paid labour cultivating or processing crops for wealthier farmers.

In Bangladesh, milling rice with a foot-operated mortar and pestle had traditionally provided the only source of income for many poor, landless women, particularly widows and divorcees. The introduction of mechanical hullers reduced the labour input from 270 hours per tonne to five. The introduction of 700 new mills will free 100 000 to 140 000 women for other fruitful work.

Extension Support for Women Farmers

Agricultural extension programmes ensure that information on new technologies, plant varieties and cultural practices reaches farmers. However, in the developing world it is common practice to direct extension and training services primarily towards men. A recent FAO survey showed that female farmers receive only five percent of all agricultural extension services worldwide and that only 15 percent of the world’s extension agents are women.

Studies on agricultural extension have highlighted a number of weaknesses in reaching rural women. Traditionally, most extension services have been devoted to farmers who own land and who are willing and able to obtain credit and invest it in inputs and technological innovations. Since women often lack access to land, or to other collateral with which to obtain credit, extension services, unintentionally, bypass women.

For too long, policies have been based on the assumption - proved wrong by studies - that information conveyed to the male head of a household would be passed on to its female members. But men do not necessarily discuss production decisions with their wives or transfer extension knowledge to them. Furthermore, policy-makers fail to recognize that men and women are often responsible for different crops, livestock, tasks and income-generating activities and that their extension needs consequently differ.

Extension services usually focus on commercial production rather than on subsistence crops, which are the primary concern of women farmers and also the key to food security in developing countries. Agents will often choose to work with a few farmers judged to have a progressive attitude, while neglecting the resource-poor and landless, including women. To compound the problem, extension meetings are often scheduled at times when women farmers are unable to attend because of their other household responsibilities.

As rural women are a vital link in agricultural development, it is essential that they take their place alongside men as full participants in and beneficiaries of extension programmes.

Gender Issues in Agriculture

- Feminization of agriculture
- Overburden of work
- Impact of technology – Access to land
- Facilities and support services
- Development bias
- Constraints to women’s access to resources
- Access to credit

- Access to markets
- Research and technology development
- Access to extension and training
- Women's education
- Training and capacity building of farm women

Gender Analysis

Gender analysis is the first and most critical step forward towards gender-responsive planning and programming. It involves the collection and analysis of sex-disaggregated information. It examines the differences, commonalties and interactions between women and men. Gender analysis examines women's and men's specific activities, conditions, needs, access to and control over resources, and access to development benefits and decision-making.

Because men and women both perform different roles, they may have different experiences, knowledge, talents and needs. Gender analysis explores these differences so policies, programs and projects can identify and meet the different needs of men and women.

Farm School and Farm Field School

The term "Farmer Fields Schools" came from the Indonesian expression Sekolah Lapangan meaning just field school. The first Field School was established in 1989 in Central Java during a pilot season by 50 plant protection officers to test and develop field training methods as part of their IPM training of trainers course. The name Sekolah Lapangan was created to reflect the educational goals; the course took place in the field, and the field conditions defined most of the curriculum, but real field problems were observed, and analysed from planting of the crop (rice) to harvest. Group decisions on the crop management was evaluated at the end of season by measuring the yield. A field was established by the participants with a research study to compare Integrated Pest Management (IPM) methods and farmer's conventional methods. Pre- and post-tests were given, the same farmers and facilitators attended throughout the season, and graduation was based on attendance and learning performance. Graduation certificates were awarded to farmers. Thus, the Farmer Field School is a school without walls that teach basic agro-ecology and management skills. There is no right way to do Farmer Field Schools, only participatory ways.

Meaning of Farmer Field School

The Farmer Field School is a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. In regular sessions from planting till harvest, groups of neighboring farmers observe and discuss dynamics of the crop's ecosystem. Simple experimentation helps farmers further improve their understanding of functional relationships (e.g. pests-natural enemy population dynamics and crop damage-yield relationships). In this cyclicallearning process, farmers develop the expertise that enables them to make their own crop management decisions. Special group activities encourage learning from peers, and strengthen communicative skills and group building.

Characteristics of the Farmer Field School Approach

Farmers as Experts: Learning by doing is the training approach used. Farmers learn by carrying out for themselves the various activities related to the particular farming practice they want to study and learn about. This could be related to annual crops, livestock/fodder production, orchards or forest management. The key thing is that farmers conduct their own field studies. Their training is based on comparison studies (of different treatments) and field studies that they, not the extension/ research staff conduct. In so doing they become experts on the particular practice they are investigating.

The Field is the Primary Learning Material: All learning is based in the field. The field is where the farmers learn. Working in small sub-groups they collect data in the field, analyse the data, make action decisions based on their analyses of the data, and present their decisions to the other farmers in the farmer field school for further discussion, questioning, and refinement.

Extension Workers as Facilitators Not Teachers: The role of the extension worker is very much that of a facilitator rather than a conventional teacher. Once the farmer know what they have to do, and what they can observe in the field, the extension worker takes a back seat role, only offering help and guidance when asked to do so. Presentations during meetings are the work of the farmers not the extension worker, with the members of each working group assuming responsibility for presenting their findings in turn to their fellow farmers. The extension worker may take part in the subsequent discussion sessions but as a contributor, rather than leader, in arriving at an agreed consensus on what action needs to be taken at that time.

The curriculum is Integrated: Crop husbandry, animal husbandry, horticulture, silviculture, are considered together with ecology, economics, sociology and education to form a holistic approach. Problems confronted in the field are the integrating principle.

Trainings follows the Seasonal Cycle: Training is related to the seasonal cycle of the practice being investigated. For annual crops this would extend from land preparation to harvesting. For fodder production would include the dry season to evaluate the quantity and quality at a time of year when livestock feeds are commonly in short supply. For tree production and soil conservation measures as hedge rows and grass strips training would need to continue over several years for farmers to be able to see for themselves the full range of costs and benefits.

Regular Group Meetings: Farmers meet at regular intervals. For annual crops such meetings may be every 1 or 2 weeks during the cropping season. For other farm/forestry management practices the number of meetings depend on specific activities need to be done.

Learning materials are learner generated: Farmers generate their own learning materials, from drawings of what they observe, to the field trials themselves. These materials are always consistent with local conditions, are less expensive to develop, are controlled by the learners and thus can be discussed by the learners with others. Learners know the meaning of the materials because they have created the materials.

Group dynamics/team building: Training includes communication skill, problem solving, leadership, and discussion methods. Farmers require these skills. Successful activities at the community level require that farmers can apply effective leadership skills and have the ability to communicate their findings to others.

1. The key features of the Farm School to be promoted under the ATMA programme are given below :
   - Farm school would be operationalized at Block/Gram Panchayat level.
   - These would be set up in the field of outstanding farmers and awardees of nationally recognized awards for farmers. These could also be set up in a Government/ Non-Government Institution.
   - "Teachers" in the Farm Schools could be progressive farmers, extension functionaries or expert belonging to Government or Non-Government Sector.
   - One of the main activities of Farm School would be to operationalize Front Line Demonstrations in one or more crops and/or allied sector activities. These demonstrations would focus on Integrated Crop Management including field preparation, seed treatment, IPM, INM, etc.
   - Farm Schools would provide season long technical backstopping/ training to target farmers.
   - The "students" of Farm Schools would be leaders of Commodity Interest Groups (CIGs) formed in different villages and other farmers.
   - "Students" would visit Farm Schools are per specified schedule or as may be necessary. "Teachers" may also visit students as may be necessary.
2. Knowledge and skills of 'teachers' would be upgraded on a continuous basis through training at district / state/ national level institutions and exposure visits, etc.
3. In addition to technical support through Farm Schools, knowledge and skill of "students" may also be upgraded through training at district/ state level and exposure visits, etc.
4. "Students" would have the responsibility of providing extension support to other farmers in the respective village or neighboring villages.

Organizational Support for Agricultural Development

To ensure agricultural development in the country which is the main stay of the 70% of its population, several developmental efforts have been initiated and launched by the successive Governments through programmes, projects, campaign and various other educational and extension activities. Considering the vastness of the Indian State with its 28 States and 7 Union Territories having predominant agricultural economy, the Government supported programmes and activities have not achieved the expected results. It is pragmatically difficult to expect everything from Government endeavour. Hence, private players, other R & D and business houses have been encouraged to put their might in achieving agricultural development objectives since 1970s particularly during Green Revolution period. As agriculture is not only technology propelled activity, it needs support from other sectors as well like credit, service, supplies, market access, local government's cooperation, etc. To provide fillip to this agriculture development process, other institution's support and activities are very much needed. The institutes which are in the forefront of agricultural and rural development since independence like cooperatives, NGOs, financial / credit institutes and village panchayats have been depicted below as pro-active organizations to support farmers' cause.

Institutional Support for Agricultural Extension and Pro-active Initiatives of Extension Organizations

The optimal organization of an extension service and its management depends to a large extent on the tasks it has to perform and the environment in which it operates. As this environment is changing rapidly the tasks of extension organizations also have to change. Major changes include :

(1) Demand for agricultural products is increasing rapidly in many countries because of a growing population and increasing incomes. As a result of this growth in income, the demand for animal and horticultural products is increasing more rapidly than the human consumption of cereals. In the past much of the growth in production was achieved by cultivating more land and irrigating a larger proportion of it.

(2) Economic liberalization opens new opportunities for farmers to sell their products in the world market and it also increases their exposure to international competition. These developments favour the more efficient farmers who are supported by a well organized input supply, marketing, research, education and extension system.

(3) Many of the present farming practices are not sustainable. Development of more sustainable farming practices often requires collective decision-making, whereas extension in the past mainly supported individual decision-making.

(4) It has become important for extension agents to help their farmers to decide on new farming systems and production technologies. The farmer often needs help to choose between the different options open to him rather than follow an extension recommendation. In other words, transfer of technology becomes less important than increasing the ability of the farmers to make their own choices.

(5) Farmers obtain new information not only from the government agricultural extension service, but also from a rapidly growing range of information sources. Developments in information and communication technologies have opened up many new opportunities to obtain information. Farmers will only turn to their extension agents for information in those fields where they provide more relevant, more reliable

and more timely information at a lower cost than other information sources. Research and extension organizations are required in most less industrialized countries which respond more quickly to farmers' need for information and education than they did in the past. Thus, extension organizations should themselves use all available sources of information, including their farmers' indigenous knowledge and experience.

(6) There are strong forces towards a change in the financing of extension organizations through privatization and financial support of governments to NGOs.

As a result of these changes most extension organizations ten years from now will have to be organized in quite a different way. Only those organizations which change drastically in structure and in culture will be able to survive in the new and more competitive climate. Major changes are needed in the ways in which extension agents perform their tasks and relate to their farmers. The extension managers will have an important task in guiding this change process.

Specialists are required in extension organizations to ensure good communication between research workers and the general extension agents who have direct contact with farmers. Furthermore, as women play an important role in agriculture, female extension agents often are required to help them effectively.

Cooperatives

The primary aim of all types of cooperative enterprises is to end human exploitation – social, economic and cultural. While this stands to be the basic aim, their objectives do tend to be country / area specific, time specific and community / target population specific. The objectives of a cooperative enterprise in India are to improve the socio-economic status of its members, reduce economic disparities and build a more just society. Cooperatives are more important in smoothening agricultural extension work to achieve agricultural development objectives as it is difficult for an individual farmer to accomplish his farming goals.

Basic Purpose of Cooperatives

The objectives of the cooperative enterprises have always to be consistent with the larger social objectives. In other words, a cooperative is not like a private, joint stock company which may aim at promoting the interest of its members, irrespective of its repercussions on other sections of the society. A cooperative enterprise aims at promoting social goods even as it works to protect and promote the interests of its members.

It also needs to be stressed here that the basic purpose of cooperation is really education – to bring about a change in the attitude and values of people. A cooperative enterprise is essentially an instrument to achieve this aim of cooperation. To that extent, one objective of all cooperative enterprises is education – to prepare its members for a just, exploitation – free society.

At the Macro level, the basic challenge before all cooperatives is basically that of their relevance to the society at large and the emerging economic and political environment. It is the challenge of continuous search of finding better means to meet the needs of the community. At the Micro level, major challenges before the three types of cooperatives are

a) **Producer Cooperatives :** Increasing agricultural productivity and production;

b) **Consumer Cooperatives :** Ensuring delivery of basic needs to the community and higher value for the money;

c) **Workers Cooperatives :** Raising the income generating potential of workers and reducing unemployment.

Basically India is an agricultural economy. Nothing can better enhance the effectiveness of cooperatives and nothing can bring more prosperity to the society than an increase in agricultural productivity and production. It is now widely believed that increasing agricultural production and productivity would require effective delivery systems that assure the farmers, help them to switch over to the modern technology, relieve them of post-harvest anxieties and fetch them an assured high price. Now, cooperatives are ideally suited to perform all these tasks. Wherever the leadership has taken up these tasks effectively, the results have been spectacular. Thus, this is the first major challenge before the cooperative enterprises, especially those engaged in agricultural and allied fields.

Financial / Credit Institutions

As it is widely accepted that there are 4 basic needs of the farmer for his farming endeavour, and if it is met, his objectives of life are accomplished. The 4 basic needs are :

- awareness of improved technology and its management practices,
- advise on appropriate farm planning and resource management,
- practical farming skills for use of new technologies, production inputs and credit, and
- post-harvest and marketing services.

Therefore, not a single need can be separated from these 4 basic needs of the farmer to make him self-satisfied in his endeavour. Credit is the most important need to carry out his mission in producing more, marketing effectively and to earn more profit for his family's social and economical upliftment. And here comes the roles of financial or credit institutions who will support farmers to fulfill his credit needs.

At present, there are a number of public and private institutions which provide credit to the farmers. They are : Nationalized Banks, Gramin Banks, Farmers' Cooperatives, State Cooperative Banks, NABARD etc. These institutes have a special programme in providing farm production credit to the farmers with special interest rates in comparison to other credit to clients specially to boost agricultural production and its related activities. Since 1979, when a few selected banks were nationalized, these special credit for the farm production have been introduced and Gramin banks have also been set up to smoothen and strengthen these activities. And there is no doubt that this credit support have helped farmers to utilize better inputs like fertilizers, plant protection chemicals, seeds and alike to realize their dream in producing more and get more profit. However, this system has helped more to the large and rich farmers than small, medium and marginal farmers.

NGOs for Agricultural and Rural Development

The Non-Governmental Organizations (NGOs) and Voluntary Organizations have a history of participation in agriculture and rural development in India. They are being increasingly involved in such activities. The characteristics of NGOs which favour such involvement are :

1. Most NGOs have been established with the basic objective of serving the rural community. They survive in the field through their own efficiency and commitment, and not because of any dictating power from above.

2. Most NGOs are small organizations that concentrate on a particular area and have a strong network at the grassroots level. They are able to understand local problems and the methods required to solve them.

3. NGOs may be able to persuade farmers to adopt new techniques because they maintain close ties with them.

4. NGOs can modify general plans and models to suit local needs. As a result NGOs can be able to provide need based services to farmers.

5. NGOs generally are strong in programme management and hence able to organize and monitor the programme more efficiently.

6. NGOs are primarily service organizations operate very closely with the people at the grassroots level and respond quickly to peoples need especially in disaster management and crisis situation.

The NGOs have a less bureaucratic and more participatory method of working. They are more competent at facilitating farmers to learn from their own experience and from each other. They are more likely to discover new development methodologies. Further, NGOs are very helpful in disaster management and meeting crises situations.

Democratic Decentralization through Panchayat Raj for People's Development

Panchayat Raj

The people's participation in agricultural development programmes is a must, as no development for people can take place without their active involvement and cooperation. Hence, every development initiative by Government and private organizations have been the joint effort of both sponsorer and beneficiary. And it has been well recognized that the success of agricultural development programmes largely depend on the participation of the people. To ensure people's participation, democratic decentralization has been the core principle of the Government and in 1957 Balwant Ray G. Mehta Committee appointed by the Government of India suggested launching of Panchayat Raj institutions in the line of democratic decentralization to help villages to ensure their own development process by utilizing the Government funds taking into account their priorities as dreamt by the Father of Nation Mahatma Gandhi.

Democratic decentralization in the present context means, that the Government which has derived its authority from the people which distributes it to some extent to the people for decision and action at the local level. This is popularly known as Panchayat Raj in India. It was thought that Panchayat Raj would emerge as a system of democratic local self-Government. The policy of democratic decentralization envisages –

i. the establishment of elected and organically linked democratic bodies at the village, block and district levels;

ii. the entrustment of all planning and developmental activities to these bodies; and

iii. transfer of adequate resources to these bodies to enable them to discharge duties.

Mehta (1978), in the Report of the Committee of Panchayati Raj Institutions (PRIs) identified three phases of Panchayati Raj in India –

1. the phase of ascendancy (1959-64);

2. the phase of stagnation (1965-69); and

3. the phase of decline (1969-77).

The Committee found that stagnation and decline in the Panchayati Raj system during the period were mainly due to –

i. keeping most of the rural development programmes and activities outside the purview of the PRIs, making them inactive;

ii. reducing the allocation of funds to the PRIs, making their resource base weak;

iii. lack of adjustment of the bureaucratic administration with the Panchayati Raj system;

iv. lack of political will, as evident in the absence of appropriate laws or if present, in their enforcement;

v. postponement of elections and supersession of PRIs; and

vi. lack of conceptual clarity about Panchayati Raj and its objectives.

The Committee further observed that the PRIs were dominated by economically or socially privileged sections of society, yielding no benefits to the weaker sections. The performance of PRIs had been vitiated by political factionalism, rendering developmental activities either twisted or diluted. Corruption, inefficiency, scant regard for procedures, political interference in day-to-day administration, parochial loyalties, motivated actions, power concentration instead of service consciousness – all these had seriously limited the utility of panchayati raj for the average villagers.

A revival of the panchayati raj system took place in some States of the country since 1977. The factors which contributed to their revival are :

1. Political will of the Government in sharing authority and responsibility with the panchayats.

2. Enactment of appropriate laws relating to panchayati raj system and their strict enforcement.

3. Holding panchayat elections at regular intervals.

4. Curbing the dominance of the economically and socially well-off sections of the rural society in the panchayats.

5. Pro-poor attitude of the Government and ensuring adequate representation of the backward classes in the panchayat raj bodies.

6. Involvement of the people at the grassroots level through the panchayats in planning and implementation of the development programmes in the rural areas.

7. Provision of adequate funds and facilities to the panchayats.

8. Administrative support and supervision by the Government to ensure proper functioning of the panchayats.

9. Holding regular training programmes of officials and non-officials for common understanding of the panchayati raj system.

To establish Panchayat Raj on a firm footing, the Constitution of India was amended (THE CONSTITUTION SEVENTY-THIRD AMENDMENT ACT 1992) which may be regarded as a landmark in the process of democratic decentralization.

The reorganized panchayat system is designed to ensure people's participation, including women and backward classes, for rural development and local self-Government at the grass roots level. Extension has to develop a system of working with the Panchayats to make people's participation in agriculture and rural development at the grassroots level a reality.

Major Programmes in Agriculture and Rural Development

Government of India has launched many schemes in agriculture and allied sectors. At times, extension functionaries in one department are not aware of the schemes implemented by other departments. It is essential for the extension functionaries to know various schemes and programs, their objectives, mandate, program components etc. awareness on various schemes will help to dovetail different on-going schemes. This ultimately facilitate for convergence and synergy in addition to minimizing duplication of efforts. With this background, information about some of the centrally sponsored on-going schemes have been given in this unit.

National Horticulture Mission

National Horticulture Mission has been launched as a Centrally Sponsored Scheme to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies. The scheme will be fully funded by the Government.

National Horticulture Mission (NHM) will be implemented in all the States and Union Territories of India except the North Eastern States, Himachal Pradesh, Jammu & Kashmir and Uttaranchal (for which a separate Technology Mission for integrated development of horticulture exists) to promote holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushroom, spices, flowers, aromatic plants, cashew and cocoa. Programmes for the development of coconut will be implemented by the Coconut Development Board (CDB), independent of the Mission. This will be a Centrally sponsored scheme in which Government of India shall provide 100% assistance to the State Missions during Tenth Plan. During the XI Plan, the Government of India assistance will be 85% with 15% contribution by the State Governments.

The main objectives of the Mission are:

- To provide holistic growth of the horticulture sector through an area based regionally differentiated strategies which include research, technology promotion, extension, post harvest management, processing and marketing, in consonance with comparative advantage of each State/region and its diverse agro-climatic feature;
- To enhance horticulture production , improve nutritional security and income support to farm households;
- To establish convergence and synergy among multiple on-going and planned programmes for horticulture development;
- To promote, develop and disseminate technologies, through a seamless blend of traditional wisdom and modern scientific knowledge;
- To create opportunities for employment generation for skilled and unskilled persons, especially unemployed youth.

To achieve the above objectives, the mission would adopt the following strategies:

- Ensure an end-to-end holistic approach covering production, post harvest management, processing and marketing to assure appropriate returns to growers/producers;
- Promote R&D technologies for production, post-harvest management and processing;

- Enhance acreage, coverage, and productivity through Diversification, from traditional crops to plantations, orchards, vineyards, flower and vegetable gardens;
- Extension of appropriate technology to the farmers for high-tech horticulture cultivation and precision farming.
- Assist setting up post harvest facilities such as pack house, ripening chamber, cold storages, Controlled Atmosphere (CA) storages etc, processing units for value addition and marketing infrastructure;
- Adopt a coordinated approach and promotion of partnership, convergence and synergy among R&D, processing and marketing agencies in public as well as private sectors, at the National, Regional, State and sub-State levels;
- Where appropriate and feasible, promote National Dairy Development Board (NDDB) model of cooperatives to ensure support and adequate returns to farmers;
- Promote capacity-building and Human Resource Development at all levels.

National Food Security Mission (NFSM)

In view of the stagnating food grain production and an increasing consumption need of the growing population, Cabinet Committee on Economic Affairs (CCEA) approved launching of a Centrally Sponsored Scheme 'National Food Security Mission. The National Development Council in its 53rd meeting adopted a resolution to enhance the production of rice, wheat and pulses by 10, 8 and 2 million tons respectively by 2011. Hence the CCEA gave its approval for launching the NFSM' to operationalise the resolution.

The Mission aims at increasing production of rice, wheat and pulses through a set of measures such as area expansion, productivity enhancement in selected districts; restoring soil fertility; creating employment opportunities and enhancing farm level economy to restore the confidence of the farmers of the targeted districts

NFSM will have three components –

(i) National Food Security Mission – Rice (NFSM-Rice)

(ii) National Food Security Mission – Wheat (NFSM-Wheat) and

(iii) National Food Security Mission –Pulses (NFSM-Pulses).

Total financial implications for the NFSM will be Rs.4882.48 crores during the XI Plan (2007¬08 to 2011-12). Beneficiary farmers will contribute 50% of cost of the activities / work to be taken up at their / individual farm holdings. Beneficiaries can choose to draw loans from the Banks in which cash subsidy amount prescribed for a particular component for which the loan availed will be released to the Banks. The implementation of the NFSM would result in increasing the production of rice by 10 million tones, wheat by 8 million tones and pulses by 2 million tones by 2011-12. It would also create additional employment opportunities.

Macro Management of Agriculture Scheme

The Macro Management of Agriculture (MMA) Scheme is a Centrally Sponsored Scheme formulated with the objective to ensure that the Central Assistance is spent on focused and specific interventions for development of

agriculture in areas of priority of different States. It became operational in 2000-01 in all States and UTs. The Scheme provides sufficient flexibility to States to develop and pursue the programmes on the basis of their regional priorities. Thus States have been given a free hand to finalise their sector-wise allocation as per requirements of their developmental priorities. The approved pattern of Assistance under the Scheme is in the ratio of 90:10 between the Centre and the State respectively except in the case of North Eastern States in case of which 100 per cent Central Assistance is extended. The Central Assistance to the States is released in two installments in the ratio of 80 per cent Grant and 20 per cent Loan.

Objective

Macro Management Scheme will aim at all round development in agriculture through Work Plans prepared by States. These include :

- Reflection of local needs/crop/regions specific/priorities etc.
- Providing flexibility and autonomy to States
- Optimum utilization of scarce financial resource
- Maximization of returns
- Removal of regional imbalances.

National Rural Employment Guarantee Act (NREGA)

The Act was enacted in September 2005 and brought into force in 200 most backward districts with the objective of providing 100 days of guaranteed unskilled wage employment to each rural household opting for it. The NREGA marks a paradigm shift and stands out among the plethora of wage employment programmes, as it bestows a legal right and guarantee to the rural population through an Act of Parliament and is not a scheme unlike the other wage employment programmes. The ongoing programmes of Sampoorna Grameen Rozgar Yojana (SGRY) and National Food for Work Programme (NFFWP) have been subsumed in NREGA. The NREGA would cover all districts of the country within five years. The focus of the Act is on works relating to water conservation, drought proofing (including afforestation/tree plantation), land development, flood control/protection (including drainage in waterlogged areas) and rural connectivity in terms of all-weather roads. Each district has to prepare perspective plan of 5 years with a bottom up approach deriving from the needs of the local community. The said plan should have the approval of especially the derived community and the Panchyat Raj Institutes (PRIs). Panchayats have a key role in planning, implementation and monitoring of the Act through preparation of perspective plan, approval of shelf of projects, execution of works at least to the extent of 50 per cent in terms of costs. The Act envisages strict Vigilance and Monitoring. Gram Sabha has the power of social audit. Local Vigilance and Monitoring Committees are to be set up to ensure the quality of works.

Micro Irrigation (MI) Scheme

Micro Irrigation (MI), which aims at increasing the area under efficient methods of irrigation viz. drip and sprinkler irrigation.

Salient features

A Centrally Sponsored Scheme under which 40% will be borne by the Central Government, 10% by

the State Government and the remaining 50% will be borne by the beneficiary either through his/her own resources or soft loan from financial institutions

Assistance to farmers will be for covering a maximum area of five ha per beneficiary family. The Panchayati Raj Institutions (PRIs) will be involved in selecting the beneficiaries

All categories of farmers are covered under the Scheme. However, it need to be ensured that at least 25% of the beneficiaries are Small & Marginal farmers The focus will be on horticultural crops being covered under the National Horticulture Mission.

National Project on Development and Use of Biofertilisers

Activities

- Production and distribution of Biofertilisers (BFs)
- Develop Standards for different BFs and Quality control
- Release of grants for setting up BF units
- Training and Publicity

Under this scheme the Government provides non-recurring grants-in-aid up to Rs.20.00 lakhs for setting up biofertiliser production units of 150 MT capacity. The grant-in-aid is offered to State Departments of Agriculture/cooperatives/public sector undertakings of fertilisers, NGOs and private agencies provided their proposals are received from respective State Governments.

One time grant-in-aid to the extent of Rs.1.50 lakhs is provided for establishment of Blue-green algae sub-centre to produce 30-40 tonnes of BGA/annum provided their proposals are received from respective State Governments.

This scheme is being implemented in the country with the help of a National and 6 Regional centres for training, field demonstration and its promotion and also through Department of Agriculture & Cooperation i.e. release of one time grant-in-aid for setting up BF units.

Promotion of Integrated Pest Management (IPM)

IPM is a broad ecological pest control approach aiming at best mix of all known pest control measures to keep the pest population below Economic Threshold level (ETL).

It is an economically justified and sustainable system of crop protection that leads to maximum productivity with the least possible adverse impact on the total environment.

In crop production technology IPM is a schedule of practices which starts from field selection till harvest of a crop. The major components in this approach are cultural, mechanical, biological and chemical methods of insect pests, diseases, weeds and rodent control in a compatible manner.

Activities

- Popularising IPM approach among farming community
- Organising regular pest surveillance and monitoring to assess pest/disease situation and study agro-eco-system to advise timely IPM control measures

- Rearing biological control agents for their field use and conservation of naturally occurring biological control agents for control of crop pests
- Promoting use of biopesticides neem based pesticides, bacillus based biopesticides, insect pathogen as alternative to chemical pesticides
- Play a catalytic role in transfer of innovative IPM skills/methods/ techniques to extension workers and farmers in all states including the rich.
- Preserve eco-system and environment
- Human Resource Development in IPM by imparting training to master trainers, extension workers and farmers by conduct of trainings

Natural Disaster Management Programme

Objectives

- To enhance the national capability for disaster reduction, preparedness and mitigation.
- To enhance the level of awareness of the community about the disasters they are likely to face and prepare them adequately to face the crisis situation in future

The components of the scheme are human resource development, research and consultancy services, documentation of major events, creation of Centre for Disaster Management at the national and state level, activities and programmes under International Decade for Natural Disaster Reduction, public awareness campaign

Skill Development Initiative

It is a new initiative of Ministry of Agriculture, Govt. of India to provide training to the farmers in modern methods of agriculture, as well as imparting of skills relevant for non-agriculture activities.

Actions for implementing this resolution may have four components:

- Target group i.e. farming community and other stakeholders
- Identification of training needs
- Identification of training institutions
- Financial resources

Farming community and other stakeholders – it may include

- Farmers
- Extension functionaries belonging to both governmental and non-governmental sectors
- Trainers at different levels

Identification of training needs

Consistent with overall National Development Council (NDC) resolution, training needs may be identified as a part of preparation of District Development Plan, Skill Gap Analysis will be done by assessing the gap between the existing technological and management practices and the recommended

practices in major crops / enterprises. In addition, skill upgradation required on non-agricultural activities, which support the agriculture and allied sector like farm machineries, motor winding, fitting and repair of borewells, sprayer maintenance, tractor driving skills and skills required for post harvest and value addition (grading, sorting, farm level processing, and packaging etc.), information support services and skills required for other income generating activities in the rural areas will be assessed.

The identified skill gaps will be prioritized based on the relevance, immediate applicability in the field and their contribution for raising the farm and non-farm income of the farming community. This exercise will be conducted in the form of Strategic Research and Extension Plan (SREPs) and also through focused group discussion with cross section of the people.

National Agriculture Development Programme (NADP) Rashtriya Krishi Vikas Yojana (RKVY)

Economic reforms initiated since 1991 have put the Indian economy on a higher growth trajectory. Annual growth rate in the total Gross Domestic Product (GDP) has accelerated from below 6 per cent during the initial years of reforms to more than 8 per cent in recent years. The Planning Commission in its approach paper to the Eleventh Five-Year-plan has stated that 9 per cent growth rate in GDP would be feasible during the Eleventh Plan period. However, Agriculture, that accounted for more than 30 per cent of total GDP at the beginning of reforms, failed to maintain its pre-reform growth. On the contrary, it witnessed a sharp deceleration in growth after the mid-1990s. This happened despite the fact that agricultural productivity in most of the states was quite low as it were, and the potential for the growth of agriculture was high.

The GDP of agriculture increased annually at more than 3 per cent during the 1980s. Since the Ninth Five-Year Plan (1996 to 2001-02), India has been targeting a growth rate of more than 4 per cent in agriculture, but the actual achievement has been much below the target. More than 50 per cent of the workforce of the country still depends upon agriculture for it's livelihood. Slow growth in Agriculture and allied sectors can lead to acute stress in the economy because the population dependent upon this sector is still very large. A major cause behind the slow growth in agriculture is the consistent decrease in investments in the sector by the state governments. While public and private investments are increasing manifold in sectors such as infrastructure, similar investments are not forthcoming in Agriculture and allied sectors, leading to distress in the community of farmers, especially that of the small and marginal segment. Hence the need for incentivising states that increase their investments in the Agriculture and allied sectors has been felt.

Concerned by the slow growth in the Agriculture and allied sectors, the National Development Council (NDC), in its meeting held on 29th May, 2007 resolved that a special Additional Central Assistance Scheme (RKVY) be launched. The NDC resolved that agricultural development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture. The NDC reaffirmed its commitment to achieve 4 per cent annual growth in the agricultural sector during the 11th plan. The Resolution with respect to the Additional Central Assistance scheme reads as below:

Introduce a new Additional Central Assistance scheme to incentivise States to draw up plans for their agriculture sector more comprehensively, taking agro-climatic conditions, natural resource issues and technology into account, and integrating livestock, poultry and fisheries more fully. This will involve a new scheme for Additional Central Assistance to State Plans, administered by the Union Ministry of Agriculture over and

above its existing Centrally Sponsored schemes, to supplement the State-specific strategies including special schemes for beneficiaries of land reforms. The newly created National Rainfed Area Authority will on request assist States in planning for rainfed areas.

The Department of Agriculture, in compliance of the above resolution and in consultation with the Planning Commission, has prepared the guidelines for the RKVY scheme, to be known as NADP (RKVY),

Basic Features of the RKVY

The RKVY aims at achieving 4% annual growth in the Agriculture sector during the XI Plan period, by ensuring a holistic development of Agriculture and allied sectors. The main objectives of the scheme are:

a) To incentivise the states so as to increase public investment in Agriculture and allied sectors.

b) To provide flexibility and autonomy to states in the process of planning and executing Agriculture and allied sectors schemes.

c) To ensure the preparation of Agriculture plans of the districts and the states based on Agro- Climate conditions, availability of technology and natural resources.

d) To ensure that the local needs/crops/priorities are better reflected in the Agricultural plans of the states.

e) To achieve the goal of reducing the yield gaps in important crops, through focused interventions.

f) To maximize returns to the farmers in Agriculture and allied sectors.

g) To bring about quantifiable changes in the production and productivity of various components of Agriculture and allied sectors by addressing them in a holistic manner.

These guidelines are applicable to all the states and Union Territories that fulfill the eligibility conditions.

Agricultural Technology Information Centres (ATICS)

The primary goal of agricultural extension is to assist farming families in adapting their production and marketing strategies to rapidly changing social, political and economic conditions so that they can, in their long term, shape their lives according to their personal preferences and those of the community. The task of extension, is to improve interactions with the Agriculture Knowledge System (AKS) so that farmers have optimum access to any information that could help them enhance their economic and social situation.

To attain these objectives, the Indian Council of Agricultural Research initiated Transfer of Technology (TOT) projects through various means like Krishi Vigyan Kendras, and Institute-Village Linkage Programme centers.

Though the aforesaid TOT projects and their vast mechanisms are made to help and serve the farming community, some of the important needs of the farmers are not yet met :

The five important needs of the farmers are :

1. Awareness of and motivation to use improved technologies / management practices.
2. Advice on appropriate farm planning and resource management.

3. Practical farming skills relevant to new technologies / management practices.
4. Production inputs and credits and
5. Post harvest and marketing services to farmers to get a good price in a competitive global agriculture.

Interestingly these needs of the farmers irrespective of their locations and farming practices are not realized by the existing transfer of technology projects. Hence a new and innovative transfer of technology mechanism named, Agricultural Technology Information Centre (ATIC) has been conceived and put into practice since 1998-99 under National Agricultural Technology Project (NATP) sponsored by World Bank and implemented through 40 ICAR Institutes and State Agricultural Universities (SAUs) located in various parts of the country..

ATIC – Its Distinctive Features

ATIC is intended to provide all basic needs of the farmers through a single window service. This unique system not only serves the farmers but also other stakeholders of the farming practices to provide solution to their location specific problems and make available all the required technological information together with technology inputs and products for testing and use by them. The rationale behind the establishment of ATIC has been :

1. Providing diagnostic services for soil testing, plant and livestock health;
2. Supplying research products such as seeds and other planting material, poultry strains, livestock breeds, fish seed, processed products, etc., emerging from the institution for testing and adaptation by various clientele;
3. Disseminating information through published literature and communication materials as well as audio-visual aids; and
4. Providing an opportunity to the institutes / SAUs to have resource generation through the sale of their technologies

Objectives of ATIC

1. to provide a single window delivery system for the products and species available from an institution to the farmers and other interested groups as a process of innovativeness in technology dissemination at the institute level;
2. to facilitate direct access to the farmers to the institutional resources available in terms of technology, advice, products, etc., for reducing dissemination losses; and
3. to provide mechanism for feedback from the users to the institute.

Attributes of ATIC

The inbuilt mechanism of ATIC ensures :

1. Availability and accessibility of new technologies
2. Relevance of new technologies
3. Responsiveness of new technologies to the needs of different categories of farmers

4. Varied requirements for different categories of farmers and

5. Sustainability of such unit within overall institutional framework.

It is expected that if ATIC works with its full vigour and mandated objectives there will be no doubt that farmers of India will be able to accomplish their coveted goal and produce more with quality and with reduced cost and will be competitive partner in the agriculture market in the context of WTO and globalisation of agriculture. Not only ATIC will help farmers to use modern technology for demand driven agriculture but also help developing viable, responsive and sustainable agriculture with linkages among research, extension and farmer's systems.

Diffusion and Adoption Process

One of the most important function of extension is to bridge gap between research centers and the farmers for of introduction of improved methods of agriculture. In other words successful communication is the main job of an extension worker. We have already considered the term communication and its elements in the units earlier discussed. An extension worker's job does not end with merely informing the farmers about improved practices, he should ensure practical application (by the farmers) of the result of research and field trials. Extension officer's efficiency can be measured

(a) by the speed or quickness with which the gap between what is known and what is done by the farmers is bridged.

(b) by the number of new practices adopted; and

(c) also by the number of farmers and communities that adopt the new practices.

While discharging the technology dissemination function by the extension workers, they are often faced with some of the following questions:

1. There is lag between what is known and what is done by most farmers. Why?
2. Where do most farmers get their new ideas?
3. In some villages, people seem to accept new ideas quickly and in others, nearly all the people are slow to take to new things. Why?

Diffusion and diffusion process

Diffusion

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas. It is this 'newness' of the idea in the message content of communication that gives diffusion its special character. The diffusion of innovations is essentially a social process in which subjectively perceived information about a new idea is communicated.

Diffusion process

Diffusion of innovations refers to the spread of those innovations through a population, and is simply the result of a host of individual adoption decisions. If individual adoption decisions are, to an extent, predictable, then the larger diffusion process is also predictable. It follows a pattern, and that element of predictability has substantial implications. Therefore the diffusion process can be explained with the terms given by Rogers as "the spread of a new idea from its source of invention or creation to its ultimate use of adopters". The diffusion of innovations is essentially a social process in which subjectively perceived information about a new idea is communicated.

Adoption and adoption process

Adoption

A diffusion of innovation with in a social system takes place through its adoption by individual or groups. Adoption is a decision to make full use of an innovation as the best course of action available.

Adoption process

An innovation diffuses within a social system through its adoption by individuals and groups. The decision to adopt an innovation, however, "is not normally a single, instantaneous act", it involves as a process. The "adoption process" is a decision-making process goes through a number of mental stages before making a final decision to adopt an innovation.

In their pioneering work of diffusion of hybrid corn seed in two Iowa's communities in the United States, Ryan and Gross (1943) first drew attention to the existence of a sequence of stages in the process of adoption by farmers (1) "awareness" of the existence of an innovation (2) "conviction" of its usefulness, (3) "acceptance" in the sense of willingness to try the innovations which is followed by its (4) "complete adoption". The existence of an adoption process involving four interrelated stages was also outlined by Wilkening (1953). He described that the adoption of innovation as a process composed of learning, deciding and acting over a period of time. The adoption of a specific practice is not the result of a single decision to act but series of actions and thought decisions. He identified four adoption stages namely, awareness, obtaining information, conviction, trial and adoption.

As already discussed, adoption is essentially as decision – making process. According to Johnson and Haver (1955), decision-making involves the following steps.

(i) Observing the problems

(ii) Making analysis of it

(iii) Deciding the available courses of action

(iv) Taking one course and

(v) Accepting the consequence of the decision

Decision - making is a process comprising a sequence of stages with a distinct type of activity occurring during each stage. Similarly, the way in which an individual adopts an innovation is viewed as a process, a series of related events in a time sequence.

Innovation

An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption. Perception is an activity through which an individual becomes aware of objects around oneself and of events taking place. The technologies, practices developed through research are innovations. These may be new varieties of crops and plants, new breeds of livestock, new chemicals and medicines, new technique of doing things etc. Farmers themselves may develop some new practices, which are also innovations. (for e.g. Turmeric intercropped with maize in Karimnagar and Nizamabad districts of Andhra Pradesh is a farmer innovation). Irrespective of the time period the idea or practice was originally developed, when a person first become aware of it, it is an innovation to that person.

Diffusion of Innovations

The process by which an innovation spreads within a social system is called "diffusion". An innovation, however, diffuse within a social system through its "adoption" by individual and groups. Diffusion and adoption are thus closely interrelated even though they are conceptually distinct. It takes time for an innovation to diffuse

throughout a social system. It is unrealistic to expect that all farmers in a community will adopt an innovation immediately after its introduction. There is always a variation among the members of a social system in the way they respond to an innovative idea or practice. While there is always few members in a social system who are so innovative that they adopt an innovation almost immediately after they come to know about it, the majority take a long time before accepting the new idea or practice. It is the first few adopters of an innovation who influence the other members of a community to adopt the innovation as they interact with them. This is referred to as the "interaction effect." After the innovation is adopted by a few farmers, they influence a few others to adopt it who, in turn, offer a new stimulus to the remaining ones. There is a definite pattern in which innovations diffuse within a community. Attempts to plot the cumulative proportion of adopters of innovation over time within a social system have shown that the resulting curve assumes the form of an S-shaped growth curve. This is called the "diffusion curve". Although all diffusion curves tend to be S-shaped, their exact forms vary by particular innovations in specific social systems. The traits which characterize an innovation affect its rate of diffusion within a social system and the resulting diffusion curve. The rate of diffusion of an innovation and the form of its diffusion curve are also influenced by the characteristic features of a social system.

When an innovation is first introduced in a social system, a small proportion of farmers adopt it. Through interaction with these first adopters and observing the results of its use on their farms, a few more farmers come to know about the innovation and its usefulness, and eventually adopt it. Over the period of time a large number of farmers become familiar with the innovation through interaction with farmers who have already adopted is reflected in the upward slope of the S-shaped diffusion curve. After the majority of the farmers of the social system have adopted the innovation, only a few hard-core resisters are left who have not yet adopted the practice, and they upward slope comes to an end. The remaining part of the curve now has a more gentle slope until the entire village adopts the innovation.

The diffusion process of an innovation thus involves four major stages. At the first stage, only a few innovative farmers try out and adopt the innovation after its introduction in a village. This group of farmers is often referred to as "innovators" who have been described to be prosperous and venturesome enough to be able to take the risk of trying out an innovative idea or practice. In the second stage, a larger group of farmers, but still a small majority in the village is influenced by the innovators to adopt the recommended practice, referred to in the literature as "early adopters", the group of farmers is not too different from the average farmer, of a village although they are often respected for their farming ability and successful and "discrete" use of new ideas and practices. Because of their respectability in the village, the early adopters serve as the role model for other farmers who seek opinion and advice on farming matters from them. It is primarily this influence of early adopters which makes the large majority of the farmers in a village, called the "late adopters", to adopt the innovation in the third stage of the diffusion process. This is when the diffusion curve takes a rather steep upward climb. In the final stage, the diffusion process slows down and the diffusion curve gently levels off as the proportionately few remaining farmers of the village gradually adopt the innovation. The small group of farmers who take the longest time to adopt an innovation is called the "laggards".

Although, the diffusion curves shown in the Fig. all generally approximated an S-curve, the slopes of curves varied from each other. In village A, for example, the diffusion curve took a steep rise within three years of the introduction of the plant protection chemicals. In village D on other hand, the diffusion curve took a longer time to rise upwards. In other words, in village A, the innovation was adopted rather rapidly by the majority of its farmers, while in village D the rate of adoption of the innovation was much slower. The rate of diffusion of an innovation thus may vary from one social system to another.

Human Resource Management

Training is an important and effective tool for capacity building and for assisting policy leaders, government officials, development project personnel, extension experts, and agriculturists in the realization of their programme objectives and plans. Often, we are faced with the need to change something or to implement a new way of doing something. Training allows us to orient those who will be involved in and / or affected by the change. Also we may need to provide people with new knowledge or new skills that are necessary to implement a change. Training is a potential solution.

Training, however, is often a underestimated activity. Sometimes experts simply think all they must do is communicate to others and change will occur. Development personnel sometimes think they can just hire a technical or subject matter expert to conduct a workshop or a training session. In either case, or in similar cases, the expectation may be over-simplified. Training is a complex activity and must be carefully planned and implemented.

The design and preparation of training is a major activity that usually consumes more time and energy than the delivery of training. Further, training is a key mechanism for developing the skills of individuals thus enhancing our human resources. When people's skills are improved, they produce more, are happier and contribute more to the well-being of their families, communities and countries.

Curriculum development, when done systematically, can make the training process better and help us build our human resources. Curriculum development that results in written plans for systematic training can help to be sure that quality is being maintained. For the trainer, a course description and set of lesson plans can provide a road map for implementing training. This road map will help in keeping the training on course and preventing problems. Additionally, the curriculum can help to assure consistency of training when more than one trainer is teaching the same course or when the same trainer is teaching a course more than once.

Therefore, training or capacity building is the essential ingredient of human resource development so as to make personnel in the system to work better, work systematically, keeping the objectives of the programme and projects in view for over all satisfaction of the client groups. Specially, in extension, the training for extension personnel must be the regular feature to up keep the knowledge and skill of agricultural technologies and its relevant fields which are changing rapidly in the context of globalization and technological revolution.

Following are the benefits of training to the organization:

- Leads to improved profitability and / or more positive attitudes toward profit orientation
- Improves the job knowledge and skills at all levels of the organization
- Improves the morale of the workforce
- Helps people identify with organizational goals
- Fasters authenticity, openness and trust
- Improves the relationship between boss and subordinate
- Aids in organizational development
- Learns from the trainee
- Helps prepare guidelines for work

- Aids in understanding and carrying out organizational policies
- Provides information for future needs in all areas of the organization
- Organization gets more effective decision making and problem solving
- Aids in developing leadership skill, motivation, loyalty, better attitudes, and other aspects that successful workers and managers usually display
- Aids in increasing productivity and / or quality work
- Develops a sense of responsibility to the organization for being competent and knowledgeable
- Eliminates suboptimal behaviour
- Creates an appropriate climate for growth
- Aids in improving organizational communication
- Helps employees adjust to change
- Aids in handling conflict, thereby helping to prevent stress and tension.
- Again, the individuals who undergo training get enormous benefits and the organization benefits from him / her. The benefits are :
- Helps the individual in making better decisions and effective problem solving
- Through training and development, motivational variables of recognition, achievement, growth, responsibility and advancement are internalized and operationalized
- Aids in encouraging and achieving self-development and self-confidence
- Helps a person handle stress, tension, frustration and conflict
- Provides information for improving leadership knowledge, communication skills and attitudes
- Increases job satisfaction and recognition
- Moves a person toward personal goals while improving interactive skills
- Satisfies, personal needs of the trainer (and trainee)
- Provides the trainee an avenue for growth and a say in his / her own future
- Develops a sense of growth in learning
- Helps a person develop speaking and listening skills, also writing skills when exercises are required
- Helps eliminate fear in attempting new tasks.

Therefore, most important and significant benefits of training accrue to not only individual but also to his organization for its overall development.

Learning Theories and Adult Learning Styles

The Learning Theories and Process

Learning is defined as the empowering experience and discovering one's learning style that can lead to an increase in achievement and self-confidence. Knowledge and skills are involved in learning. Further,

learning is an active process and it cannot be passive. Learning also means acquiring knowledge and skill and related information which can help the learner to perform better in any kind of endeavor. There are many different theories of how people learn. It is interesting to think about one's particular way of learning and to recognize that everyone does not learn the way another person does. There are several theories of learning like:

Sensory stimulation theory: Its basic premise is that effective learning occurs when the senses are stimulated.

Reinforcement theory: The theory was developed by the behaviorist school of psychology and it stresses that learner will repeat the desired behaviour if positive reinforcement follows the behaviour.

Holistic learning theory: The basic premise of this theory is that the individual personality consists of many elements specially, the intellect, emotions, the body impulse, intuition, and imagination that all require activation if learning is to be more effective.

Cognitive – Gestalt approaches: The emphasis here is on the importance of experience, meaning, problem solving and the development of insights.

Facilitation theory (the humanist approach) : The root premise of this theory is that learning will occur by the educator acting as a facilitator through establishing an atmosphere in which learners feel comfortable to consider include ideas and are not threatened by external factors.

Experiential learning: This theory asserts that without reflection people would simply continue to repeat their mistakes. The experiential learning cycle consist of concrete experience, conceptualization, and active experimentation.

Action learning : Action learning is the approach that links the world of learning with the world of action through a reflective process within small cooperative learning groups known as 'action learning sets'.

Adult learning (Andragogy) : This theory highlights that when adulthood arrives in the people they behave in adult ways and believe themselves to be adults. They feel they should be treated as adults. The adult learning was special in a number of ways. For example ;

- adult learning bring a great deal of experience to the learning environment;
- adult expects to have a high degree of influence on what they are to be educated for;
- adults need to be able to see application for new learning, and
- adults expect their responses to be acted upon when asked for a feedback on the progress of the programme.

Adults as learners & their learning styles

Part of being an effective instructor involves understanding how adults learn best. Compared to children and teens, adults have special needs and requirements as learners. Adult learners have the following characteristics:

Adults are autonomous and self-directed. They need to be free to direct themselves. Their teachers must actively involve adult participants in the learning process and serve as facilitators for them.

Adults have accumulated a foundation of life experiences and knowledge that may include work-

related activities, family responsibilities, and previous education. They need to connect learning to this knowledge / experience base.

Adults are goal-oriented. Upon enrolling in a course, they usually know what goal they want to attain.

Adults are relevancy-oriented. They must see a reason for learning something. Learning has to be applicable to their work or other responsibilities to be of value to them.

Adults are practical, focusing on the aspects of a lesson most useful to them in their work. They may not be interested in knowledge for its own sake. Instructors must tell participants explicitly how the lesson will be useful to them on the job.

As do all learners, adults need to be shown respect. Instructors must acknowledge the wealth of experiences that adult participants bring to the classroom.

Motivating the Adult Learner

Another aspect of adult learning is motivation. At least six factors serve as sources of motivation for adult learning :

- **Social relationships:** to make new friends, to meet a need for associations and friendships.
- **External expectations:** to comply with instructions from someone else; to fulfill the expectations or recommendations of someone with formal authority.
- **Social welfare:** to improve ability to serve mankind, prepare for service to the community, and improve ability to participate in community work.
- **Personal advancement:** to achieve higher status in a job, secure professional advancement, and stay abreast of competitors.
- **Escape/Stimulation :** to relieve boredom, provide a break in the routine of home of work, and provide a contrast to other exacting details of life.
- **Cognitive interest :** to learn for the sake of learning, seek knowledge for its own sake, and to satisfy an inquiring mind.

Training Cycle, and its Process

Training helps in building capacities among the individuals so as to improve their performance in their job activities. When question of extension and technology transfer comes it provides all unique opportunity to the participant trainees (extension personnel / trainers) to know the ground realities and farmers' preferences and changing situations of agriculture which help them to act effectively. Generally, three types of training are necessary and provided to extension personnel. They are :

- Induction training
- Orientation training, and
- On the job training.

The training cycle have three phases: planning, implementation and evaluation:

Planning : Determining what we want to achieve and how we will achieve it. This phase is essentially the curriculum development process, and it includes a series of steps that, if followed, will help ensure a consistent and effective training effort.

Implementation : Doing what is necessary to achieve our goals and objectives. Implementation is the process of putting training programmes into operation. The planning phase results in a curriculum. At this point we activate the curriculum. We should conduct the training according to the content we have identified and the procedures we have outlined.

Evaluation : Checking to see that we have succeeded in achieving our objectives and, where necessary, making changes to improve training activity results in the future. Evaluation and feedback should normally occur at each step in the curriculum development and implementation phases. In addition, we should conduct formal evaluation at the conclusion of the training activity, using the tests and other learning assessment procedures to determine the level of training effectiveness. What we learn from the evaluation should be used to identify additional training needs and to make changes that will improve the training when it is conducted again.

Training Need Assessment & Designing Training

Needs assessment helps to identify present problems and future challenges to be met through training and development. Organizations spend huge amount of money (usually as a percentage on turnover) on training and development. Before committing such huge resources, organizations would do well to assess the training needs of their employees. Organizations that implement training programmes without conducting needs assessment may be making errors. For example, a needs assessment might reveal that less costly interventions (e.g. selection, compensation package, job redesign) could be used in lieu of training.

Further, training needs assessment is required to find out and identify the needs of individual training on which they should build their professional competencies to carryout the assigned job in his organizations. However, together with his professional need the personal and development needs are also to be taken care of, which will help him facilitating his efficiency to carryout his assigned duties. These needs generally described as :

a) A Training need may be described as existing in any time, an actual condition which differs from a desired condition in the human expect all organizational purpose or more specifically when a change in present human knowledge, skills or attitudes can bring about the expected purpose.

b) A personal need may be said to exist always and personnel set to actively seek to satisfy it within the constraints impose by the organization. Advancement in career is an example of personal need or also the orientation towards family or other non-work issues.

c) A development need deals within the total growth and efficiencies of the individual, particularly as a person expands realized abilities towards the potential that he or she seems capable of achieving.

The details of training needs assessment and designing of training curriculum have been dealt in the subsequent sub-sections.

Training Need Assessment Process

Several methods are available for training need assessment. Some of them are useful for organizational level needs assessment and others for individual need assessment. Following tables depicts the methods used in training needs assessment in both group and organizational and individual analysis.

Group or organizational analysis	Individual analysis
Organizational goals and objectives	Performance appraisal
Personnel/skills inventories	Work sampling
Organizational climate indices	Interviews
Efficiency indices	Questionnaires
Exit interviews	Attitude survey
MBO or work planning systems	Training progress

These methods exactly are used in facilitating the processes of training need assessment. Training needs assessment only helps the trainer to decide on training curriculum, content, methods, techniques of training, evaluation and outcome so as to make the training programme complete and successful.

Again to make training programme effective and purposeful, the trainer has to decide on the selection of resource persons, appropriate training venue with suitable training learning situations based on the assessed needs of the participants.

Processes of Training Needs Assessment

Every training and development programme and its needs are assessed on the following steps, namely :

1. The participants of the programme and their background
2. Their expectation from the programme
3. Their previous / existing knowledge and skills on the subject of the training programme
4. Deciding on the methods sand techniques to be used for the training
5. The level of training
6. What learning principals are to be followed to expose the participants towards the training objectives, and
7. Training learning situations – the location and venue of the training programme

Needs assessment process is vital and its effectiveness to really identify the needs solely depends on the trainers. If it is identified, with holistic information then only desired training curriculum, to be developed and content of the module to be made to provide desired information to the participants which will be compatible with their expectations from the programme.

The Process of Designing Training Module

Based on the training needs assessment, with all the detailed information about the trainee participants, their expectations, their existing knowledge and skills, their expectation to learn the things, training methods and techniques to be employed and training objectives to be attained and training evaluation, curriculum design or training module are to be developed. Hence, the process should include the following :

1. Determining training needs

Our first step in developing curriculum is to determine training needs. The most effective way to determine appropriate content for training activities is to conduct a needs analysis. Needs analysis is the process of determining if there is a discrepancy between desired performance and actual performance of the trainees.

2. Specifying training objectives

Once training needs have been identified, we need to describe those needs as objectives worth meeting. Unless training objectives are developed, a training activity cannot be systematically designed to achieve particular outcomes. It has been said that : " If you're not sure where you're going, you're likely to end up somewhere else – and not even know it." To avoid this situation, we must be able to state exactly what you want the trainees to accomplish and also what we are willing to accept as proof that they are able to do this.

3. Organizing training content

We should use the training objectives we have developed as the starting point for selecting the subject matter we will include in the training activity. For each objective there is certain information that we can include which the trainees will be able to use to meet that training objective. We will rarely be able to include everything we want to teach. Specifying objectives tells us where we want to go. Organizing content into a lesson plan helps us to plan the details of the lesson.

4. Selecting training methods and techniques

Although outlining the training content is important, just outlining content will not ensure that trainees learn anything. As a trainer, we must be concerned with providing trainees with learning activities that effectively present the training content and help them accomplish training objectives.

5. Identifying needed training resources

At this point, we need to identify the resources require to conduct the training. We will need to determine what facilities, equipment, and materials are required. In addition, we must identify necessary administrative and personnel support.

6. Assembling and Packaging Lesson Plans

This is the point where we pull together the training objectives, training content, training methods, and training resources into a plan we will use in conducting the training. The lesson plans serve as our written record of how we plan to conduct the training. They will help we stay organized and on schedule. Most importantly, they will help us to provide effective training that will facilitate achievement of the training objectives.

7. Developing training support materials

Along with the necessary facilities, equipment, administrative and personnel support, we will be required to develop training support materials. Training support materials are those things that help us teach the training content and help the trainees learn. Training support materials include audio-visual teaching aids, trainer reference materials, trainee handouts and reference material, and trainee learning aids.

8. Developing tests for measuring trainee learning

It is much more difficult for us to measure actual learning that takes place than it is to determine what trainees think about or how they feel about a training activity. It is important to know how trainees feel about the training, since unmotivated trainees are not likely to be involved in the training and, therefore, not learn much. However, more importantly, we also need to know how much trainees are learning.

It is important for us to check trainees' progress along the way. Measuring trainees' learning during the course of training allows you to make necessary adjustments in your pace of instruction and the methods we are using. When we have finished training and the traineesare ready to return to their work, you need to know their skills in performing all the training objectives. Measuring trainees' learning provides you with concrete feedback about what the training programme has achieved.

9. Trying out and revising training curriculum

Once the entire training programme is put together, we should try it out on a small group of people to determine its strengths and the areas that need to be revised. Training programme "try out" includes evaluation of training materials for technical accuracy and instructional effectiveness. Subject matter experts should be involved in the "try out" to provide feedback on the technical accuracy of materials. If possible, trainees and other trainers should be involved in the "try out" to provide feedback on effectiveness of instructional materials and methods.

10. Getting Feedback from Trainees

Feedback from participant trainees helps immensely in improving the training content, curriculum design and overall preparing training module for the next programme on the similar nature and subject area. To gather meaningful feedback the trainer must design an effective evaluation proforma to have objective responses from the participants on all aspects of the training.

Participatory Extension

Participatory extension provides a framework for extension staff to participate with village communities in facilitating development planning and activity implementation. This approach ensures the extension response becomes community driven and assist village communities implement their planned activities with routine monitoring and evaluation of activities and development progress. Importantly, as the name implies, the extension process is seeking maximum participation from women and men from all groups within the target village communities.

People's participation should be viewed as an active process in which people take initiatives and action that is stimulated by their own thinking and deliberation and which they can effectively influence. Participation is therefore more than an instrument of implementing government projects. It is a development approach which recognizes the need to involve disadvantaged segments of the rural population in the design and implementation of policies concerning their well-being. While participatory approaches have been successful in many countries at stimulating self--help activities at the local level, they can and should also be followed in the design, implementation and evaluation of large¬scale projects.

Progress is accelerated through the synergy between participating partners. Through interaction each partner provides input and knowledge from their experiences, thereby expanding the knowledge and experience base for planning and implementation. In this way progress, with fewer setbacks is ensured, accelerating development. These features have lead to naming the process 'participatory Extension'.

Definition of Participation

Participation is defined as a voluntary contribution by the people in one or another of the public programmes supposed to contribute to national development, but the people are not expected to take part in shaping the programme or in criticizing its contents (Economic Commission for Latin America, 1973).

Participation includes people's involvement in decision-making processes, in implementing programmes, their sharing in benefits of development programmes and their involvement in efforts to evaluate such programmes (Cohen and Uphoff, 1977)

Community participation is an active process by which beneficiary or client groups influence the direction and execution of a development project with a view to enhancing their well-being in terms of income, personal growth, self-reliance, or other values they chaerish (Paul, 1987).

Steps in Participatory Approaches

- Rapport building: The first most requirement of PRA is rapport building and environment creation for free and frank interaction by the villagers. The best way to achieve this condition is that the team members during the study period stay and eat with local people. The team should listen and take part in every day activities.
- DIY (Do-It Yourself): The team members should make efforts to perform the activities that the villagers are dong such as sowing the seeds, transplanting, harvesting, threshing, feeding the animals, milking, chaffing the fodder etc. This helps not only in rapport building but provides practical ideas and feelings of complexities of activities.

- Consultations with the villagers and outsiders: The choice of the village and officials such as District Collector, other development workers concerned Sarpanches, and villagers were informed and consulted before initiating the process. The choice of the village must be agreed upon by the top leadership of the District and civic leaders. The site should accessible for ease of supervision and typical.
- Secondary Data Collection: Secondary data refers to information gathered from reports, newspapers, leaflets, pamphlets, library sources, folklore and other classified documents. This information is derived from researchers, NGO, departmental reports and documentaries. It is advisable to gather information on a community before going to the field to conduct the actual diagnosis. The data collected and synthesized by the multidisciplinary team can be used and background information to the Action Plans to be developed by the village residents. Furthermore, this data can be used to validate information obtained from the semi-structured interviews.
- Training of Trainers: Training of a core team of facilitators is an important phase in PRA activities. It equips the trainers with the knowledge and skills to train other extension workers and village residents and ensures capacity building for sustainability. The first training of trainers is conducted at National level. The participants consist of Professionals at senior level from line ministries and NGOs actively involved in rural development. These form the Core team of facilitators called Master Trainers. It is this team of trainers which train staff at district level.
- Diagnosis: Diagnosis is an examination and analysis of any given situation. In the context of PRA diagnosis examines the village residents' practices, opportunities, the problems they encounter, and their causes. This crucial information is obtained using various tools such as secondary data (earlier discussed), mapping, transect, venn diagram and semi structured interviews etc.

Different Participatory Approaches

In the late 1970s, dissatisfaction with the results of long-term "baseline surveys", as well as of unstructured and superficial short-term studies (also known as " rural development tourism") prompted a search for more cost-effective and above all more realistic methods. In 1981, Michael Collinsion described how it was possible with ease to conduct an exploratory survey to identify agricultural research priorities within the space of a single week. Nevertheless, he recommended following up such studies by exhaustive formal verification surveys to convince the "establishment" of the correctness of the results obtained. Acceptance of the approach then grew.

Participation aims at bringing about change in people's attitude which is critical on the part of the people involved towards their environment and adoption of interventions for agricultural development. In recent years, there has been a lot of developments, in the use of participatory approaches. Some of these approaches focus more on problem diagnosis, other are more oriented to community empowerment, some concentrate on facilitating farmer-led research and extension, while others are designed to get professionals in the field to listen to farmers.

Some of the these approaches are :

1. Rapid Rural Appraisal (RRA)
2. Participatory Rural Appraisal (PRA)

3. Participatory Learning Methods (PALM)
4. Agro-Ecosystem Analysis (AEA)
5. Participatory Action Research (PAR)
6. Participatory Assessment, Monitoring and Evaluation (PAME)
7. Farming Systems Research (FSR)
8. Participatory Rural Appraisal and Planning (PRAP)

These participatory approaches are widely used by both public and private agencies including NGOs.

1. Rapid Rural Appraisal (RRA)

RRA is a social science approach that emerged in the early 1980s for applications in development cooperation. In it, a multidisciplinary team make use of simple, nonstandard methods and the knowledge of local people to quickly elicit, analyze and evaluate information and hypotheses about rural life and rural resources that are of relevance for taking action. RRA techniques are an attractive alternative to conventional survey methods when the aim is not to systematically capture precise figures, a typically time-consuming and cost-intensive undertaking, but rather speedy and action-oriented assessment of local knowledge, needs and potentials with an aim to elaborating strategies to resolve conflicts or investigate specific problems. They are also suitable for shifting the focus of conventional surveys onto essential aspects.

RRA can be defined as a systematic, semi structured activity conducted on-site by a multidisciplinary team with the aim of quickly and efficiently acquiring new information and hypotheses about rural life and rural resources.

2. Participatory Rural Appraisal (PRA)

The word "appraisal" in PRA has a much broader connotation than its dictionary meanings as "estimation of the value of an asset/goods" or "an act of estimation/assessment of nature, quality and importance of asset". In the world of project cycle an appraisal is done to assess economic, financial and technical feasibility of a project. Once a project is identified, a preliminary assessment is followed by the technical appraisal of the concerned project. The stage of appraisal precedes that of planning and design and is normally done by technical experts. The experts calculate the internal rate of return (IRR) of a project to determine whether the project would achieve some minimum acceptable IRR on the resources invested. Now dimensions of conventional project appraisal include gender analysis, social impact assessment and environmental impact assessment as done by experts. They might choose to consult different groups of people associated with the resource-flows, the final decision¬making will, however, be with such experts.

Internationally this is often referred to as Participatory Rural Appraisal, abbreviated "PRA". It is a further evolutionary stage of the RRA approach. In it, emphasis is placed on empowering local people to assume an active role in analyzing problems and drawing up plans, with outsiders mainly acting as "facilitators". Here it is no longer the external experts but rather the local people themselves who "own" the results of the study. This enables them to assume responsibility for implementing the activities based on them. PRA methods are successful within the scope of programs that support participatory development cooperation, e.g. approaches as "participatory

technology development", farmer back to farmer/farmer experimenter networks" "participatory action research".

PRA is a way of enabling local (rural and urban) people to analyze their living conditions, to share the outcomes and to plan their activities. It's a "handing over the stick to the insider" in methods and action. The outsider's role is that of a catalyzer, a facilitator and convenor of processes within a community, which is prepared to alter their situation.

RRA and PRA methods are used:

- In order to ascertain needs ("felt needs");
- To establish priorities for development activities;
- Within the scope of feasibility studies;
- During the implementation phase of projects;
- Within the scope of monitoring and evaluation of projects;
- For studies of specific topics;
- For focusing formal surveys on essential aspects; and
- To identify conflicting interests between groups.

The areas in which RRA/PRA have so far been applied include:

- Management of natural resources (soil and water conservation, integrated agroforestry, fishery, wildlife conservation, etc.)
- Agriculture (field crops and animal husbandry, irrigation, markets, etc.)
- Programs dealing with poverty alleviation and emancipation (women, credit needs, identification of the poorest, additional income-generating measures, etc.)
- Health and nutrition (basic health-care and food-security programs, drinking water supply).
- Village level ("bottom up") and district planning
- Institution and policy analysis.

3. Principles of PRA

The principles of PRA have evolved over time. Interestingly, new principles are still being added to the list. What distinguishes these principles is that these are induced rather than deduced, and based on practice and experience of what works and what does not work. Chambers (1997) has listed the following principles.

Behavioural Principles of PRA

Chamber (1997) has listed another set of PRA behavioural principles. These include:

Handing over the Stick

Holding the stick is a sign of dominance and control. It is an important principle of PRA where the outsiders encourage the local people to take control of the process of depiction and analysis, etc., of their realties. PRA believes in the capacity of the local people to take control of their lives. Local people have shown the ability to depict even their complex realities in various forms, for instance ranks, scores,

figures and plans. For want of an enabling environment, they might be unable to do so. An outsider can easily initiate this process and then local people can continue. The outsider facilitator initiates the process and passes on the control to the local people and sits back and observes, intervening only when essential. This has been called 'handing over the stick'.

Self-critical Awareness

Self-critical awareness of the facilitators has emerged as one of the important behavioural principles of PRA. The facilitators need to examine their own behaviour continuously and critically. There are various components of self critical awareness. Embracing error, i.e. using errors as an opportunity to learn, is one of them. Similarly, failing forward, i.e., facing failure in a positive way, is another component. Being aware of one's dominant behaviour and its impact on the interaction is another important aspect of self critical awareness. Constant reflection on behaviour and its impact on the interaction is another component. Being aware of one's own dominant behaviour and its impact on the interaction is another important aspect of self critical awareness. Constant reflection on behaviour and attitudes is an important activity for any PRA practitioner.

Use Your Best Judgments

The facilitators take personal responsibility for facilitating the process. In so doing they act in accordance with the local conditions and with the needs of the circumstances. The facilitators should innovate and improvise. In so doing, follow the dictum 'use your own best judgments at all times'.

From Stealing to Sharing

Sharing is one of the key principles of PRA. In PRA, the sharing of information and ideas takes place at different levels-between local people, between outsiders and local people, amongst outsiders and amongst their organizations, regions, countries, etc. As against this in the questionnaire method outsiders take away facts, data, and information from people, which is why some people label the questionnaire method 'stealing'.

Participatory Tools and Techniques

PRA is not a panacea and would not solve all the problems in the world, but it does open up some ways of trying to tackle these challenges (Chambers, 1997). PRA sounds exciting and promising. All those who have used it find it quite fascinating and even addictive. Each application proves to be a unique learning experience. It highlights the need for following an open and flexible approach. More than just a methodology to interact with people and a set of methods, most of the facilitators strive to make PRA and the basic attitudes associated with it-open mindedness, flexibility, giving more opportunities to other to explore themselves, respect for others and their approach to their lives.

A number of methods are in use. New methods and improvisations are being constantly added to the list of the PRA methods. PRA methods can be broadly classified into three categories namely space, time and relationship methods. Each of the categories in turn has a number of other methods which have their own strengths and limitations.

Even some of the experienced PRA practitioners do not always find the selection of PRA methods for the exercise to be the easy. The first step in the selection of PRA methods is to decide on the dimension you want to study, viz., space, time or relations. This sounds simple, but at times it can prove complicated, particularly in cases where you want to study more than one aspect at the same time, e.g., space and time. You will have to decide which is the more important one.

The second step is to look at the list of methods, particularly the ones that deal with that aspect, and then decide on which methods will best serve your purpose. Finally, you will have to identify one largely depends upon its suitability for your purpose. Various factors, like the types of participants, their educational background, the availability of time with the participants and the facilitators, details aimed at, etc., play a crucial role in selection of the method.

Space Related PRA methods

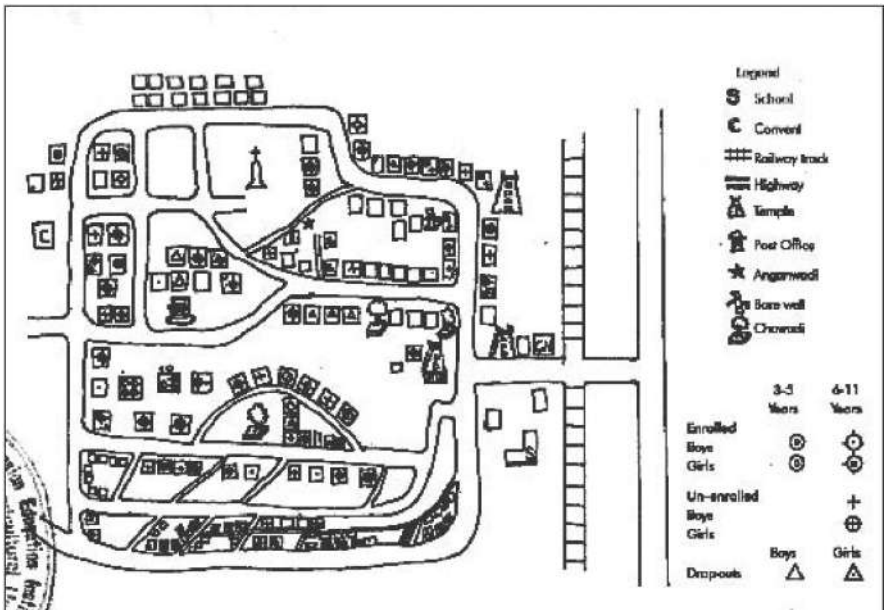
Social Map

Social mapping is the most popular method in PRA. For many, in fact, it synonymous with PRA itself. Quite a potent method, it seeks to explore the spatial dimensions of people's realities. The focus here is on the depiction of habitation patterns and the nature of housing and social infrastructure: roads, drainage systems, schools, drinking-water facilities, etc. social map is different from other regular maps in significant ways. For one, it is made by local people and not by experts. For another, it is not drawn to scale. It depicts what the local people believe to be relevant and important for them. Thus it reflects their perceptions of the social dimensions of their reality with a high degree of authenticity. In spite of there being many overlaps, a social map is different from a resource map. The latter depicts the natural resources-land, water sources, flora and fauna, etc. In certain cases, though, a map could be a rich combination of the two (Village map). This is quite often so in the case of areas having a dispersed settlement pattern.

Objective: The chief feature of a social map is that it is a big help in developing a broad understanding of the various facets of social reality, viz., social stratification, demographics, settlement patterns, social infrastructure, etc. The diverse applications of social maps include:

- Developing a comprehensive understanding of the physical and social aspects of village life.
- Collecting demographic and other required information household-wise
- Providing a forum of discussion in which to unravel the various aspects of social life
- Serving as a guiding instrument during the process of planning interventions
- Serving as a monitoring and evaluating tool.

Social Map of Chetlamallampuram



Selection of Site for Mapping: Location of the site for mapping is quite crucial. Hence you would do well to keep the following points in mind while selecting the site:

1. Capacity to Hold People

- Does the site have enough capacity to hold the required number of participants?
- Does the site get cluttered up in the case of large gathering?

2. Location

- Is it a central place?
- Will it be convenient for everyone?

3. Exclusion

- Will it comfortable for all sections of society to come there?

  For example, a temple courtyard could be a good site for social mapping, but in some of the Indian villages the weaker sections of society may not get entry there. For that matter, other caste women are not allowed entry into certain temples during their menstrual period (Sheelu, 1996). Likewise, areas dominated by particular social groups may not be easily accessible to others. Similarly, domination of particular individuals may keep away those who do not get along with them

4. Suitability

- Is there enough shade for the participants?
- Is the surface fairly smooth for the exercise?

Even as you must keep these points in mid while selecting the site, the best bet is to ask the local people to do it. Then visit the proposed site along with the participants and see if it is suitable in view of the factors mentioned above. Just in case, check with some local people if there is anything about the site which could hinder the participation of any section of the society. In case the perspective of a specific group is particularly important for you, mapping a site in their locality could prove useful.

5. Transferring onto Paper

Social maps can be drawn on the ground or directly on a large sheet of paper. Social maps are commonly made on the ground with locally available material. Hence they are not safe and permanent. They need to be copied onto paper immediately. Usually the map is copied onto a large sheer of paper with all the details. This is necessary for other exercises, discussions, and later, for monitoring purposes. Moreover, it saves the trouble of doing the map all over again.

6. Number of Participants

Of all the PRA methods, social mapping makes for the active involvement of the largest number of participants. This is all the more so when it is done on the ground. Each person has something or the other to look for in the map. It is quite often seen that when the mapping is over, old persons and young children alike try to locate their houses. And mostly, they are not only able to identify their own houses but those of others too. Moreover, those who appear to be mere onlookers tend to point out errors and omissions while the process is on. What is remarkable is that all of them follow avidly whatever is happening even if they are not actively involved in it.

Material Required: A wide range of materials has been used for social mapping. It can well be extended further. Usually leaves, twigs, matchboxes, seeds, colour soils and powders, utensils, thread, etc., have been used. The list is by no means exhaustive.

Time Required: The time required for social mapping may very quite a lot. It is influenced by various factors including the size of the locality, the interest of the participants, the nature and extent of the details sought and the type of materials used.

Scope for Improvisation and Complementarity with Other Methods. Social mapping has been a versatile method in that it is amenable to innumerable improvisations at the villagers' levels.

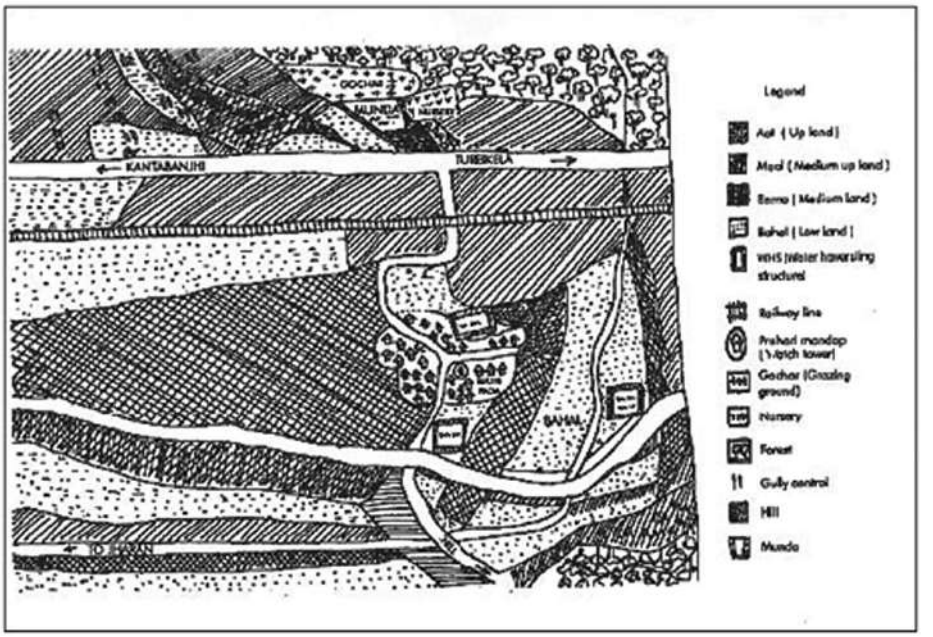
Resource map

Resource map is one of the most commonly used PRA methods next to social map. While the social map focuses on habitation, community facilities, roads, temples, etc., the resource map focuses on the natural resources in the locality and depicts land, hills, rivers, fields, vegetation, etc. A resource map may cover habitation as well. At times, the distinction between the resource map and social map may get blurred.

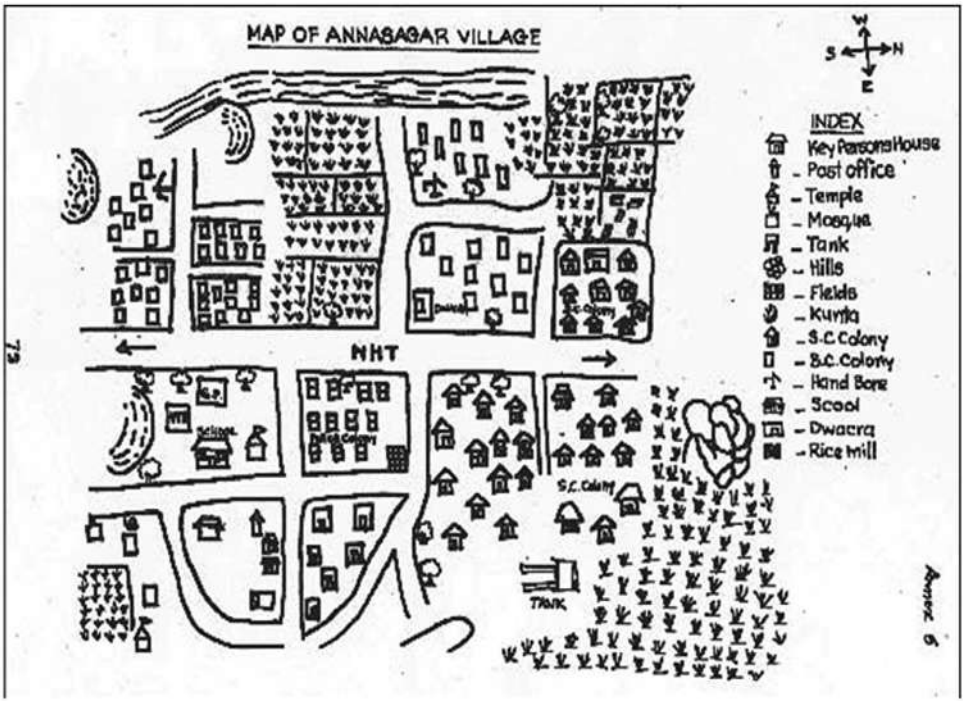
A resource map in PRA is not drawn to scale. It is not done by experts but by the local people. The local people are considered to have an in-depth knowledge of the surroundings where they have survived for

a long time. Hence the resource map social map drawn by the local people is considered to be accurate and detailed. It important to keep in mind, however, that it reflects the people is perceptions rather than precise measurements to scale. Thus, a resource map reflects how people view their own locality in terms of natural resources.

Resource Map of Naupada



Village map of Annasagar Process of Resource Mapping



Steps: The mapping process remains quite similar to that of a social map. Only the focus is different. The main steps include:

- Select a proper place for preparing a resource map of the area in consultation with the local people. Fix the time and invite people from different sections of the society. Ensure that the marginalized groups and women definitely participate.
- Start the exercise at the fixed time. First explain the purpose of the exercise.
- Ask them to start showing the major resources. Encourage them to use locally available material in a creative way and to make the map as representative as possible.
- Do not interfere. Allow them to do it on their own. In case they get stuck, help them out.
- Listen carefully to the discussions they have, while preparing the map. Note down the relevant points.
- In case the participants are not representing the aspects you are interested in, have patience. Wait till the mapping process comes to an end. Ask them unintrusive question without disturbing the process. Some helpful questions include:
    - What about…?
    - Can you show me…in the map?
- Ask them to explain the map including the various symbols, visuals and colours used.
- Ask them to depict and discuss the problems and opportunities in keeping with the objectives of the resource map.
- At the end, ask them whether anybody would like to make any modifications or additions.
- Keep an eye on who is actively involved and who is marginalized. Try to involve the marginalized groups and women in the process.
- Interview the map. Interviewing it provides valuable insights into the status of natural resources. It helps you to clarify your doubts and know about aspects you are interested in. The key questions can include:
    - Can you tell me more about…?
    - This looks very interesting. Can you explain it to me in more detail?
- Copy the map onto a large sheet of paper with all details including legends. Also make a small sized copy for attaching to the report and for making copies.
- Triangulate what is on in the map. One way is to go for a transect. The other way is to talk about the map with certain key people in the village and get their feedback.
- Thank the participants for their active participation.

Material Required: The resource map along with social map has been the favourite of local people who let loose their creativity using a range of materials. Seeds of different types, soil, chalks, coloured

powder, stones and pebbles, twigs, leaves, paper, and cardboard have all been used for making resource maps. The list, however, is not exhaustive.

Time Required: Two to three hours may be required for doing resource mapping. The time may vary considerably depending upon the details aimed at.

Transect

Transect is another PRA method used to explore the spatial dimensions of people's realities. It has been popularly used for natural resource management. It provides a cross-sectional representation of the different agro-ecological zones and their comparison against certain parameters including topography, land type, land usage, ownership, access, soil-type, soil fertility, vegetation, crops, problems, opportunities and solutions.

Though natural resources remain the focus of any transect, this does not mean that there is no place for the depiction of social aspects. Various social aspects for e.g., the caste and ethnic determinants of a settlement, access and control and gender-related dimensions are captured in detail, depending upon the objectives of the exercise.

A transect is different from resource map despite areas of overlap. The resource map provides a bird's-eye view of the locality with a focus on natural resources. A Transect, however, depicts a cross-sectional view of the different agro-ecological zones and provides a comparative assessment of the Zones on different parameters. It is generally done after a resource map and therefore helps in triangulation. It also helps in taking forward the process of problem identification and planning for the development of the natural resources in the area.

Transect differs from a historical transect in that the focus here is geographical while the focus in the latter is on trends or changes over time on aspects related to natural resources. It is generally like a snapshot of the same transect at different points of time.

Objectives

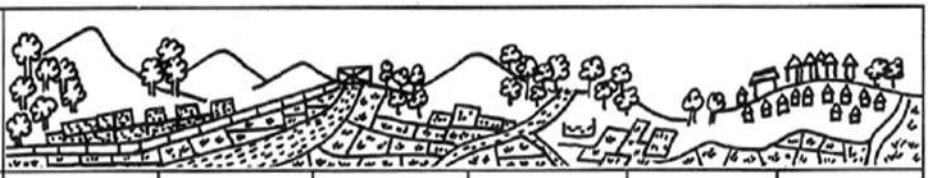
- Appraisal of natural resources in terms of status, problems and potential
- Verification of issues raised during other PRA exercises particularly during social mapping, natural resources mapping, etc.
- Planning of various interventions and checking the relevance of the planned interventions
- Monitoring and evaluation of interventions and projects.

The Process Steps: The transect could comprise of the following steps:

- Locate a group of local people having some knowledge of the area and who are willing to walk with you for the exercise.
- Explain the purpose of transect to the people and involve them in the process of decision making regarding the transect path you should take to maximize the observing of details of the locality.
- Have a discussion and arrive at the parameters according to which you would like to collect data during the walk.
- Fix a time for the transect walk with the local people.

- Go along with the people at the prefixed time on the already decided transect path. If the situation on the field so demands, do not hesitate to make modifications. Also carry the list of parameters and preferably the resource map for the walk. They come handy for reference during observation and discussions en route.
- Observe the surroundings. Make mental notes if you could manage with it. However, it is preferable to take detailed notes: with local terms flooding you, it is not advisable to rely on your memory too much.
- Ask questions to clarify things you are not clear about to the local people accompanying you. Listen carefully to what they say. Also listen to the discussions they have amongst themselves. Encourage them to explain as you move.
- If necessary, stop at certain locations for detailed discussions on the points emerging. It also gives you a breather and time to not down details.
- Use this opportunity to clarify issues emerging from the social map, resource map and other methods.
- Collect and bring some leaves, grass, etc., which you find interesting but are not familiar with. It helps to refer to them in discussions later and also in documentation.

Transect of Ghantabahal village

Land scape / Features						
Area locality	Tentel Khunti	Karla Pita	Kora Dungri	Gharla Munda	Latha Kend	Ghantabahal
Land types (local name)	Up land (Aat) Low land (Bahal) Hills (Parbat)	Mostly upland (Aat) Very little low land (Bahal)	Rocky mountain (Parbat) Upland (Aat) Forest (Patro)	Up land (Aat) Low land (Bahal) Plantation forest	Only low land (Bahal)	Mostly low land (Bahali and Bahal)
Water source	Kankara Jor	Dor Jodia	Seasonal stream	Karla Munda Lathakend Munda	Archu Munda	Ningi Munda, wells, tube wells
Species	Mahua, Rengal, Char, Dharua, Bija Sahas, Palsa, Womb, Kendu (wild animal)	No Forest Railway line	Chakunda, Niligiri, Bamboo Bhamar, Neem, Sipol Tental	Nou Munda, Akari Chakunda, Niligiri, Bhamar, Sipo, Mango, Kaju (Patra land)	Mostly Palsa, Mahua	Neem, Banyan, and Mahua
Uses	Less cultivation Low productivity Forest produces	Cultivation of vegetables	Less cultivation Grass land, Plantation	Encroached field plantation, cultivation of more rice	Good cultivation of Paddy and vegetables	High yield, good cultivation of rice, millets, pulses
Ownership	Government and people	Government and people	Government and people	Soil conservation department and people	People	People

Participants: Sundari Rana, Jitendra Jani, Pancha Majhi, and Chate Chatar
Facilitators: Saroj Das and Mahendra

Time Related PRA Methods

Time Line

Time line is an important PRA method quite commonly used to explore the temporal dimension from a historical perspective. Time line captures the chronology of events as recalled by local people. It is drawn as a sequential aggregate of past events. It thus provides the historical landmarks of a community individual or institution. The important point to note here is that it is not history as much the events of the past as perceived and recalled by the people themselves.

Objectives

- To learn from the community what they consider to be important past events.
- To understand from the community the historical perspective on current issues.
- To generate discussions on changes with respect to issues you are interested in e.g. education, health, food security, gender relations, economic conditions, etc.,
- To develop a rapport with the villagers, since a discussion about the past of the village can be a good non-threatening and enjoyable starting point.

The following information is elicited from the time line

a. Information on technological time line in a village

b. Year wise information

c. Preferable select an old person in the village for this technique

Table 1 depicts a typical time line. It provides a historical perspective of Bannur village, Kurnool, Andhra Pradesh. As in most cases, this time line depicts the time landmarks on the left side and a brief description of the major events as recalled by a group of villagers on the right. They traced their history back to 1905 when an irrigation tank was constructed in the village. a number of other major events mostly related to developmental activities, e.g., construction of school buildings, roads, wells and two droughts of 1931 and 1960, were also recalled. The exercise was carried out in the initial stages of the PRA in 49 Bannur village and was helpful in developing a rapport with the participants.

Trend Analysis

Trend analysis is a popular PRA method used to explore temporal dimensions with a focus on change. It captures and trends related to certain variables over different spans of time. It is, thus, people's account of the pat and of how things have changed and hence also provides a historical perspective.

The local people have a good understanding of the present situation and the changes that have taken place over the years. Trend analysis can provide a good idea of the quantitative changes over time in different aspects of village life, such as yields, population, livestock population, the number of trees, area under cultivation, rainfall, etc., it helps to understand increases and decreases in the variable under study over a period of time. It generally charts broad movements in different aspects of the local peoples lives rather than precise shifts. The discussion that follows a trend analysis may also look into the causes of changes and thus provide an understanding of the dynamics of change.

Objectives

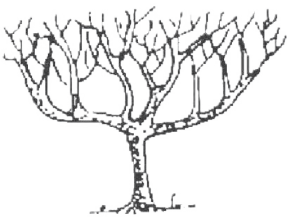
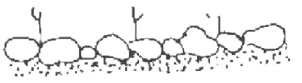
- Learn from the community as to how they perceive change over time in various areas/aspects of their lives.
- Integrate significant changes in the village profile.
- Discuss village problems and any increase or decrease in the severity of the problems over the years rather that asking direct questions.
- Discuss interventions and measures which had worked out or failed in the past and the reasons thereof.
- Understand peoples perception of not only the past and present but also of the shape of things to come in the near or distant future with or without intervention.
- Produce a conductive environment, after discussions on reasons for the present state of affairs to plan the possible interventions.

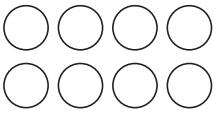
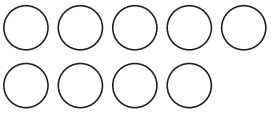
The following are elicited from time trend analysis'

1. trend analysis of production,
2. productivity,
3. price of major enterprises in a village ?

It starts from major cropping season eg., KHARIF-RABI-SUMMER, Variation in Seasonality of labor, crops, pests, activities or any other agriculture operation.

Trend Analysis of Aukpa-Adoka, Nigeria (Natural Resources)

Natural resources / Period	 Water	 Tree	 Farmland
1960 (Independence)	• Rains daily during June • No wells • Water always in the river	○○○○○ ○○○○○	○○○○○ ○○○○○

1970 (End of civil war)	• Rains at least once in 2-3 days in June		
1979-80 (Shagari)	• Rains at least once in 4 days in June		
1999 (Today)	• Rains sometimes once in 8-10 days in June • River and well dry in dry season		
Participants : Adama, Elizabeth Sule, Omoja Peter, Ochesija Nichlas and Oglinulu Okpachu Facilitators : Paul C			

Seasonal Diagram

Season diagram is also called seasonal calendar, seasonal activity, profile and seasonal analysis. Seasonal diagram is one of the popular PRA methods that has been used for temporal analysis across annual cycles, with months or seasons as the basic unit of analysis. It reflects the perceptions of the local people regarding seasonal variations on a wide range of items. Seasonal diagram, however, are not based on statistics, though they may be triangulated against secondary or primary data in order to verify the information generated.

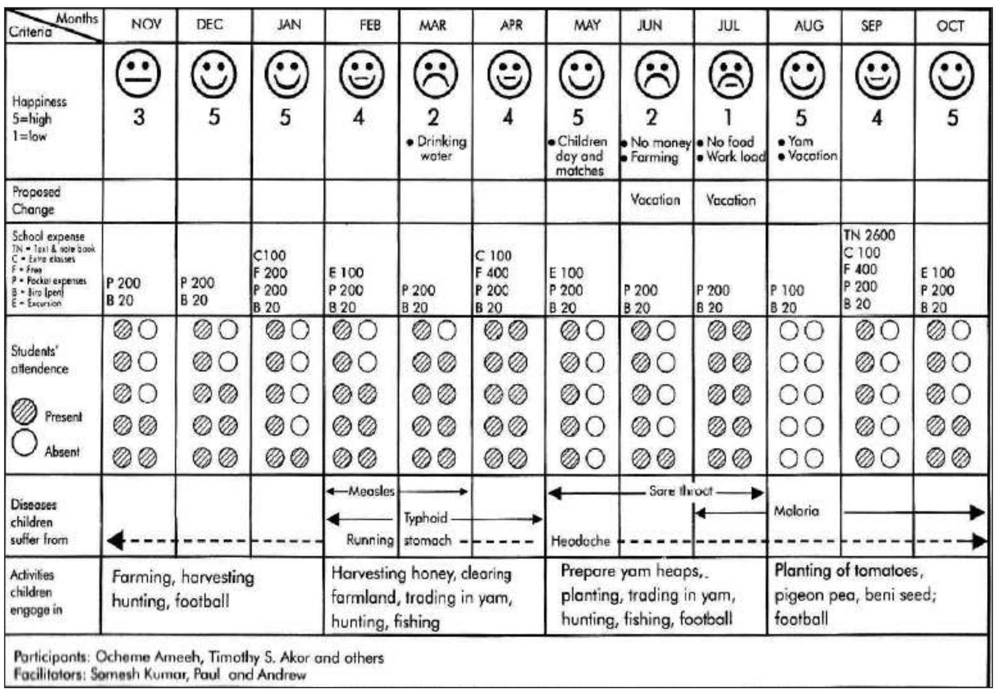
Objectives

The major strength of seasonal analysis is that it depicts a range of items and their magnitude, which helps in understanding how these items are related to and influence one another. These relationship can be quite revealing.

- Seasonal diagram helps to identify heavy workload periods, of relative ease, credit crunch, diseases, food security, wage availability etc.
- It has proved to be useful in project planning, i.e., when to implement various activities.

- It has been used to identify periods of stress and to plan for when intervention is most required.
- It is possible and analyses the livelihood patterns across the year.
- Process Steps: The suggested steps for making a seasonal diagram are:
- Explain the objective of the exercise to the participants.
- Start a discussion on the present month and then the work they have been doing during the season. Move to the present month and then the other relevant ones. Write the names on cards in bold letters.

Seasonal Diagram of village Aukpa – Adoka, Nigeria on Agricultural and Education



- Ask them to identify a unique characteristic of each month, one by one, that would remind them of the month. It can be a symbol or drawing. Encourage them to do it themselves. It can be fun and add to their involvement. This will ensure that even the non-literate participate meaningfully.
- Draw a grid with chalk on the floor. In the grid have a least 13 columns and a many rows as the items you want to study. Keep the cards with names of the months and visuals or symbols in the top boxes in order, horizontally.
- Now on the vertical axis, take the aspects whose seasonal variations you are interested in to represent the magnitude of the activity using different number of seeds or sticks of different can be used to indicate the number of days. Similarly, sticks of different size can be used to indicate the quantity of rainfall during the month. After completing one aspect or activity move to another, until all of them are similarly covered.
- Ask the participants whether they would like to take up any other aspect or activity or make any modifications to the diagram.
- Interview the diagram, i.e. ask them questions on aspects about which you are not clear.

- Facilitate a discussion and analysis among the participants and others present. The points of discussion could include.
    - Major findings and learning
    - Implication of the finding
    - Recommendations and action points
- Please keep track of the points arising out of discussion among the participants right from the beginning. These provide equally valuable insights, if not more important ones, than the output itself.
- Copy the diagram on a piece of paper with legends and details of the participants, facilitators locality and date.
- Thank the participants for their active participation and valuable time.
- Later triangulate verify the findings with other key information to ensure that the information generated are correct.

In some communities the concept of months may not exist at all. Similar questions with respect to the season may be quite revealing there.

Well-being ranking methods

Well-being ranking, also known as wealth, ranking and well-being analysis, is PRA method commonly used for ranking and grouping household and communities on the basis of income, wealth, and other perceivable well-being criteria. Well-being ranking is based on the perception of the local people. It helps to understand the local peoples perception of wealth, well–being and their views on socio-economic disparities between households.

While wealth ranking was the initial activity in vogue, the realization that wealth or income as the sole criteria of well-being does not reflect the realities of the people has grown. Wealth ranking reveals. A materialistic focus on income and assets. It has an economist's bias, since it is based on measurement; well-being is more oriented towards the quality of life. Well-being is culture-specific and is difficult to measure. Well-being ranking however provides a unique method for exploring local people's thinking on well-being. Therefore well being ranking method has gained prominence. In fact, the sensitivity involved in exploring wealth has also induced facilitators to opt for well being rather than wealth ranking. However, well-being ranking is a relative and not an absolute assessment of people's wealth or well-being.

Objectives

- To identify and classify households or groups based on relative well-being in the areas of income, wealth, assets, status etc.,
- To identify target groups intervention and to check whether the programmes are reaching the target groups.
- To explore issues relates to livelihood, vulnerability, constraints to development as people perceive them, and to design intervention strategies in line with people's aspirations.
- To study inter-household and inter-group socio-economic disparities and to understand how the local people view them.

- To arrive at an understanding of people's criteria and indicators for wealth, the good life, well-being, development, etc.,
- To study the impact of interventions or well-being programmes on different group/households and to develop a baseline for monitoring and evaluation.

Process Well-being ranking can be done in different ways including:

- Card Sorting Method
- Social Mapping Method

Card Sorting Method The steps in the process of well-being ranking using the card sorting method include:

- Arrange for a list of households in the locality where you want to do the well-being ranking
- Write the names of the head of households on small cards-one household per card.
- Explain the purpose of the exercise to the participants. Ask them to rank the households based on the well-being of the households concerned.
- Let the participants do the ranking on their own.
- While dealing with small villages with households ranging 30-40, ask the participants to arrange the households in descending order of well-being, ie., higher to lower on well-being.
- As the participants arrange the household cards, ask them why they have placed the cards in a particular order. This gives you the criteria participants are using to do the well-being ranking

Matrix scoring of socio economic status of various groups: Dhauradadar

Well-being Groups (characteristics)	Quality of land	Availability of water for irrigation	Livestock ownership	Land holding	Quality of food	Quality of house (walls, floor, roof etc)	Dependence on labour	Dependence on forest or wood	Dependence on stone cutting	Quality of clothes
Manages well (Grain from own land lasts for 8–10 months) (11)	●●●	●		●●● ●●●	●● ●●●	● ●●● ●●● ●●●				● ●●● ●●●
Somehow manages (Grain from own land lasts for 6–8 months) (21)	● ●●●		●●	●●	●●●	●●● ●●●	●●	●●● ●●●		●● ●●●
Manages with difficulty (Grain from own land lasts for 3–4 months) (39)			●	●	●●	● ●●●	●●● ●●● ●●●	● ●●● ●●● ●●●	●●●	●●●
Dependent on labour and forest (42)					●	●●	● ●●● ●●● ●●●	● ●●● ●●● ●●●	●●● ●●	●

Participants: Anand Chandra Pradhan, Murli Pradhan, Chandrasekhar Pradhan, Arjun Pradhan, Khirodra Pradhan, Sanjay Biswal, Pradeep Behra, Dhoba Behra, and Narayan Pradhan

Facilitators: Satyasachi Jatt, Vijaya Mishra, and Anindo Banerjee

- However, when dealing with larger villages, the above method may become tedious and not add to your understanding. In such cases, ask the participants to sort out the household cards into

representative categories of well-being. Ensure that the participants discuss amongst themselves and arrive at the well-being categories.

- Find out the characteristics of each of the categories. If the participants have not already named the well-being categories.
- Find out the characteristic of each of the categories. If the participants have not already named the well-being categories, ask them to do so. Encourage them to depict the categories with visuals on symbols.
- Note-down the numbers and the names of the head of the households falling under each category of well-being. Add the necessary basic details on each household card. Also prepare a category wise list of the households with details of the assets, income, occupation. etc.

Venn Diagram

Venn diagram is one of the commonly used methods in PRA to study institutional relationship and is sometimes also referred to as institutional diagram. It is however, popularly known as Chapati diagram (Chapati means 'round bread' in Hindi) as the method uses circles of various sizes to represent institutions or individuals. The bigger the circle, the more important is the institution or individual. The distance between circles represents, for example, the degree of influence or contact between institutions or individuals. Overlapping circles indicate interactions and the extent of overlap can indicate the level of interaction.

Objectives

- To study and understand local peoples perceptions about local institutions, individuals, programmes, etc.
- The method provides valuable insights into and analyses of the power structure, the decision¬making process, etc., the need to strengthen the community's institutions can also be ascertained.
- The relative importance of services and programmes has also been studied using the Venn diagram

Venn diagram is particularly useful when you want to study and analyse:

- Various institutions and individuals and their influence on the local people.
- Various groups and individuals in the locality and their influence.
- The main actors in the community and their conspicuous and inconspicuous influence.

The following information is elicited in Venn diagram

1. relative importance of various institutions in the village
2. relationship among them,
3. linkages among them
4. weaknesses with respect to decision making process
5. development of the village by institutions
6. duplication of efforts among institutions
7. gap identification between institutions

8. objectives and felt needs of farmers
9. concentration of power within villages

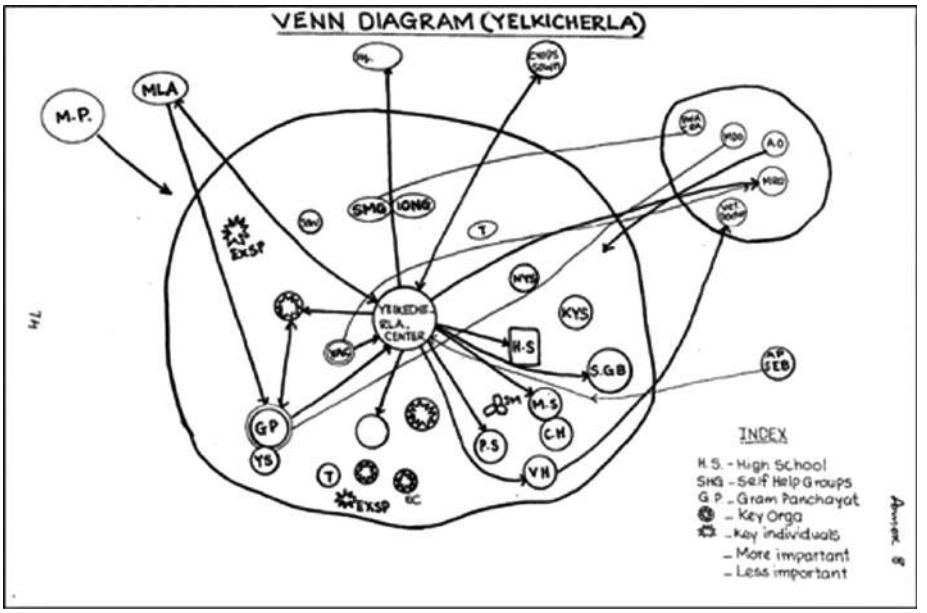
In fact, you can use a Venn diagram if you are inclined to use a simple participatory visual method and have.

- A number of items to be studied: institutions, individuals, diseases, social groups, natural resources or any of their combinations;
- To study these items in relation to a few variables, preferably two, which could include importance, prevalence and perceived proximity.

Process: Steps: The Suggested steps in the process of doing a venn diagram are as follows:

- Explain the purpose for the exercise to the participants
- Ask them to list the various institutions, individuals, etc, as per the objectives of the exercise
- Ask them to write and / or depict them on small cards. Visual depiction becomes necessary if there are non-literate participants.
- Ask the participants to place the cards on one of the variable of study, e.g, perceived importance of the institutions, in a descending order. Once the cards are arranged in an order. Ask them whether they agree or would like to make modifications. Encourage them to make changes, if they are interested.
- Ask them to assign paper circles of different sizes (cut and kept ready) to the institutions or individuals in such a way that the bigger the circle, the higher that institutions or individual ranks on that variable. Past on the circles the cards with names of institutions or individual. If you want, you can simply note down or depict the institutions or individuals on the circles.

Venn diagram of Yelkicherla



- Draw a circle on the ground representing the community. Ask them to place the circle in such a way that those high on the second variable, accessibility, are kept close together, while those low on the variable are kept away from the circle representing the community.
- Once all the cards are placed, ask them if they agree with the placement. In case they want to placed with an overlap. The degree of overlap indicates the degree of interaction
- Ask them to discuss and explain why they placed the cards in such a manner. Not down the points of discussion and explanation.
- Copy the output onto a sheet of paper. Record the name of the village, participants, date, legends, what the size of the circle represents and what the distance represents.
- Thank the participants for their active involvement and time.
- Triangulate the diagram and the major findings with others knowledgeable about the situation to ensure that your information is correct.

Group Led Extension

Group Dynamics

The term dynamics connotes adjustive changes taking place in the group structures as a whole as caused by changes in any part of the group either due to change of task, or additional responsibilities or addition / deletion of a member. Thus, group dynamics refers to changes, which may take place within groups and is concerned with the interaction and forces obtained between group members in a social setting. It is the study of forces operating within group. At each stage of group development, a number of forces-physical, moral, social and economic-operate within the group and influence his behaviour, ultimately affecting the group performance of productivity. The study of these forces is called group dynamics. It may be defined as the study of the sum of all forces operating within a group that influence the members and affect group behavior. A number of forces, no doubt operate within a group, but when we consider a small work group, there are certain significant forces that contribute to its performance. These forces operate in every work group and contribute to its productivity.

The dynamics that operate in groups:

a) Participation.

b) Leadership/influence.

c) Group decision-making.

d) Group cohesiveness.

e) Teamwork or co-operation.

f) Problem solving.

g) Conflict management.

h) Group communication

i) Group structure (Roles of Members and Norms)

Participation in a small group

A group is more than a collection of individuals. What individuals do when working alone in distinctively different from what happen when individuals work together in a group. Sometimes you are advantaged by being part of a group. On the other occasions, you would be better off working alone. Participation provides a number of important advantages to its members.

1. A group offers greater learning and satisfaction.
2. A group offers more resources for creative problems solving
3. For complex tasks, a group can make better discussions.
4. Psychological advantage.

There are pitfalls in group participation:

1. A group can pressure members to conform to the majority's view.
2. A group takes longer to complete a task than an individual. In terms of efficiency, the group does well than an individual, but it needs more time to discuss issues and to analyse and resolve problems than an individual working alone.

3. Interpersonal attractions as well personal agendas may interfere with getting the job done.

   Sometimes, there are dominant members, who want to takeover although other members do not feel the need, atleast not until they have had a chance to understand the problem. Others will feel less satisfied. They may not think that they have made a contribution to the group. In certain situations, some members contribute or do not like their share of work. Ringlemann found that as group added individual members, the efforts of some individuals seemed to decline. The term Ringlemann effect has been used to signify an inverse relationship between the number of people in a group and the size of an individual's contribution.

Understanding group behaviour means looking at the ways participants can achieve their mutual needs. Accomplishing tasks and meeting personal needs are of concern to any group. The role of participation i.e. very crucial in achieving these needs. Benne and Sheats offer a list of behaviours that group members use when they are aiding the group.

Group task behaviours

Initiator: Helps the group to understand the complex nature of the problems; helps the group to define its goals, contributes new ideas, suggest ways of looking at an issue or tackling a problem when group is unable to proceed.

Elaborator: Supports an idea with illustrations, given meaning of an idea, helps the group to anticipate consequences of an idea.

Coordinator: Enables members to see the inter dependencies of their ideas and contributions of all the members; tried to maintain relationships among members.

Evaluator: Tells members how well these proposals match their stated goals; measures and evaluates group achievement by giving feedback to the group.

Summarizer: Helps the group to understand what it has accomplished and what remains to be done. Gives the group a sense of how much progress it has made and how close it is finishing.

Group building/Maintenance behaviour.

Encourager: is sensitive to all the contributors of other and to the morale of the group. Praises members individually. Helps to build the groups cohesiveness and satisfaction.

Harmonizer: encourages the group to confront personal issues that interfere with its work. Helps the group to focus on the issues rather their on members personal antagonisms.

Gate keeper: helps regulate the participation of members. Asks for opinions and suggestions from those who do not contribute, ensuring that group uses more of its resources.

Standard setter: Functions as the group ego. Holds up the ideal for which the group is striving. Helps the group to determine how well it is functioning and whether it is functioning and whether or not it will succeed in reaching its goal.

Tension releaser: Eases the tension in the group when members are under stress. Reduces members, anxiety and helps to improve productivity by suggesting a break but without disrupting the essential work of the group.

Group participation is affected by members' patterns of participation. Though they are disadvantageous or advantageous of different patterns of participation, an effective group will give all members equal

chance to participate. Effective groups assist members in developing ideas. They do this by giving an idea attention, comprehensive, elaboration and modification. Members will devote their time and energy to helping each other, explore the implications of an idea or suggest ways of improving it. Therefore, effective group participation, is an important factor for achieving group productivity.

By participation more ideas are pooled up, more time is devoted to explore them, tasks are better understood by all and tasks are well implemented.

Group Leadership:

In order to achieve goal, some one in a group has to influence and give direction. Not all the members in a group emerge as leaders. Why certain individuals emerge as leaders? What behaviours do individuals display that group members value? The answers to these questions can be explained in terms of group behaviour.

a. Groups try to reach a goal, and the activities they select are designed to move then along apath towards that goal. The theory behind this is that leaders have task requirements and will seek guidance as to which activities will produce satisfying outcomes. The more, they are committed to reaching a desired goal, the more apt they are to seek the help of a person who can assist that in achieving that aim.

b. Group members would like to believe that they are contributing in getting the groups work accomplished. It is only when the members feel that they are participating usefully that they can be productive and satisfied. Thus a member who can coordinate individual contributions and assist members in their movement towards a goal will likely be rewarded leadership status.

c. The interactions of leaders and followers stimulate individual and group accomplishment. Leadership in a group is an exchange process in which leaders and followers give and receive benefits. The theory behind this suggests that members accept the direction of the most capable performer in exchange for such assistance.

What are leadership behaviours:

1. Verbal activity: The person who speaks the most, or perhaps takes the lead in speaking first, has a edge in gaining leadership status.
2. Task competence: Ability to direct others in doing the group's work is the second significant variable in leadership perception. A person initially perceived as competent in directing the groups
3. task and earns enough credit, they are able to take innovative actions necessary for the group's achievement.
4. Communicative competence: Individuals identified as leaders were seen as more self assured, more competent in providing goal orientation, procedural directions and summaries.
5. Procedural sensitivity: Helping the group understand contributions that are relevant
6. Substantiveness: Keeping the group on track, moving the participants toward constructive ends.
7. Agreeableness: Smoothing over potentially damaging situation

8. Skepticism: Helping the group avoid premature judgements

9. Language: Language used by leader is important. Leader should be able to give members a vision, a sense of what they are doing and what needs to be done. The emergent leader functions as a essential communicator in the group.

What makes for leader effectiveness?

Groups need direction

1. Groups do not progress in an orderly manner: In a group, there will be differences between members, conflicts, and disorders. An effective leader reflects an understanding of group process by allowing various views to be learned, by clarifying a point, probing for more information and by summarizing the progress of the group making toward its goals.

2. Groups alternate between task needs and social needs. All groups have a tendency to digress and to get off the track. Leaders have to recognize this and set right it properly.

3. Clarification of issue: Through discussions and questions and leaders can make the group to understand and to distinguish between more important and less important issues.

4. The impact of social-emotional relations: Members in a group experience frustrations, tension, anger and disappointment time to time. Leader has to be sensitive to all these and bring into the normalcy. Supporting members at times of stress can go a long way in building a group climate that is generally congenial for accomplishing goals effectively.

Group decision-making

Groups come together for a variety of purposes. In most instances, however, they are brought together to reach some decision or conclusion, or to solve a problem. This process is one of the key activities and plays a vital role in communication, motivation, leadership and other aspects of group behaviour.

Decision-making is the process of choosing a course of action from among alternatives. Before discussing the decision making process in groups, it is useful to understand the nature and procedure followed in decision making in general. Decision making process is having the following stages:

Diagnose the problem à Develop alternatives à Evaluate alternatives à Select best alternative à Implement and monitor.

Decision making styles

The styles exhibited by group members are observed at tow stages (a) diagnosing the problem and (b) evaluation of alternatives.

Problem identification involves two psychological functions: ‘Sensation’ and ‘intuition.’ People who are sensation type like to solve problems in standard ways. These individuals do well in routine work, and at lower levels of hierarchy, they are quite effective. Intuition types like to solve new problems. Doing the same thing again and again bores them and they are likely to become impatient and make snap decisions in dealing such problems. They rely on hunches, non-verbalised ques, spontaneity, and an openness in redefining and re-working problems until they are solved.

Two other orientations that affect evaluation are thinking and feeling. Thinking types tend to be unemotional and uninterested in feeling of others. Their discussions are controlled by intellectual

process based on extent information and generally accepted ideas and values. These people usually organize information well and seldom reach a conclusion before carefully considering all options well. Feeling types like harmony and they tend to be sympathetic and relate well to others. They also enjoy pleasing people and believe that much of the inefficiency and ineffectiveness in the group is a result of interpersonal difficulties.

These two pairs of styles represent extreme orientation in a group. In other words, an individual who is high on sensation will be low in intuition. Similarly, a decision maker low on thinking will be high on feeling. Dovetaling these two pairs of styles, we can have four basic styles of Decision Making in a group: Sensation Thinking (ST), Sensation-Feeling (SF), Intuition Thinking (IT) and Intuition-Feeling (IF).

Decision Making Techniques:

i. Interacting groups: members sit face to face and decide the things.

ii. Brainstorming: Ideas are generated by encouraging any and all alternatives. It overcomes conformity, criticism, and generates novel ideas.

iii. Nominal group technique: Individuals meet face to face to pool their judgments in a systematic, but independent fashion. The steps in nominal group technique are as follows.

   a) Presentation of the problem.

   b) Each member presents one idea at a time till all the ideas are presented and recorded.

   c) Group now discusses the ideas for clarity.

   d) Each member silently and independently ranks the ideas.

   e) The ideas with highest aggregate ranking is the final decision.

iv. Group decision making by consensus.

How do groups make decisions?

Though decision making is supposed to pass through different stages, in practice small groups make decisions differently. The popular methods of decision making are:

a) Decision by lack of response: Ideas after ideas are suggested without any discussion taking place. When the group finally accepts an idea, all others have been bypassed and discarded by simple lack of response rather than by critical evaluation.

b) Decision by authority rule: The chairperson or leader makes the decision for the group. This can be done with or without discussion and is highly time efficient. When the decision is good, depends on whether or not the leader had necessary information and how well it is accepted by other members.

c) Decision by minority: Two or three group members dominate and force the group to make a decision they agree with. This is often alone done by providing a suggestion and then forcing a quick agreement on it.

d) Decision by majority rule: By voting or polling, members to find the majority viewpoint. But, voting tends to create coalitions of “winners” ad “losers”. Those in minority can easily feel

left out or discarded without having a fair say. This can detract from the implementation of a decision since support is fragmented in the final result.

e) Decision by consensus: Consensus is a state of affairs where a clear alternate appears with the support of most members, and even those who oppose it feel that they have been heard and had a fair chance to influence the decision outcome. Consensus, therefore does not require unanimity but requires no outright dissent either.

f) Decision by unanimity: Here, all the group members agree on the course of action to be taken. This is logically a perfect method that is extremely difficult to obtain in actual practice.

Group Cohesiveness:

Cohesiveness is defined as the extent to which the members are attracted to each other and to the group. The term cohesiveness is understood as the extent of liking each member of the group. It is the degree to which members are attracted to and motivated to remain part of a group. Persons in a highly cohesive group value their membership and strive to maintain positive relationships with others. Members also experience satisfaction from group affiliation. So, cohesion is an important group property and it is important to know (1) what creates group cohesiveness and (2) what results are expected out of cohesiveness. Group cohesiveness in discussed in detail in section 3.8.5.

Team work/cooperation

Every individual of the group must work together. Each member must understand the task to be done and relation of individual task to the goal of the group. Cooperation and coordination are very much required. Individual needs are to be kept aside when the group goal is contradictory and group goal is to be given utmost importance. All the members in a group shall work harmoniously without giving any scope for jealousy. Proper communication, openness and clarity in work are essential for better team work

Basics of Market Led Extension

Focus of extension agencies on production technologies yielded very good results and hence India become self reliant on food production. Significantly, the extension system had played its role untiringly in transfer of production technologies from lab to land, besides the agricultural scientists, farmers and marketing network. But the farmers at individual level are not realizing remunerative prices for their produce. Add to this, the Indian farmers have to face challenges of global force that are affecting or are likely to affect Indian agriculture. This assumes greater significance in the light of the new international trading regime under WTA and the export opportunities being opened up. Therefore extension functionaries need to play a major role to build the capacity of the farmers to meet the emerging challenges and make the farmers to realize better prices to their farm produce. But, Market – led extension so far is a peripheral issue in the extension scenario. Hence the extension focus should extend from mere production to market led extension on end-to-end basis.

Stages in a Commodity Marketing System

A commodity marketing system encompasses all the participants in the production, processing and marketing of an undifferentiated or unbranded farm product (such as cereals), including farm input suppliers, farmers, storage operators, processors, wholesalers and retailers involved in the flow of the commodity from initial inputs to the final consumer. The commodity marketing system also includes all the institutions and arrangements that effect and coordinate the successive stages of a commodity flow such as the government and its parastatals, trade associations, cooperatives, financial partners, transport groups and educational organizations related to the commodity. The commodity system framework includes the major linkages that hold the system together such as transportation, contractual coordination, vertical integration, joint ventures, tripartite marketing arrangements, and financial arrangements. The systems approach emphasizes the interdependence and interrelatedness of all aspects of agribusiness, namely: from farm input supply to the growing, assembling, storage, processing, distribution and ultimate consumption of the product.

The marketing systems differ widely according to the commodity, the systems of production, the culture and traditions of the producers and the level of development of both the particular country and the particular sector within that country. This being the case, the overview of the structure of the selected major commodities marketed, which follows, is both broad and general. Table 1 identifies the main stages of agricultural marketing of these commodities.

Stage 1 : Assembly	Commodity buyers specialising in specific agricultural products, such commodities as grain, cattle, beef, oil palm, cotton, poultry and eggs, milk
Stage 2 : Transportation	Independent truckers, trucking companies, railroads, airlines etc.
Stage 3 : Storage	Grain elevators, public refrigerated warehouses, controlled atmosphere warehouses, heated warehouses, freezer warehouses

Stage 4 : Grading and Classification	Commodity merchants or government grading officials
Stage 5 : Processing	Food and fibre processing plants such as flour mills, oil mills, rice mills, cotton mills, wool mills, and fruit and vegetable canning or freezing plants
Stage 6 : Packing	Makers of tin cans, cardboard boxes, firm bags, and bottles for food packaging or fibre products
Stage 7 : Distribution and retailing	Independent wholesalers marketing products for various processing plants to retailers (chain retail stores sometimes have t heir own separate warehouse distribution centres)

The government plays an important role in the marketing of farm products. The nature and degree of involvement, however, different depending on the commodity and marketing functions. In general the involvement was greatest in the case of grains, particularly, rice and wheat, which were staple products. In some cases, government or state-owned enterprises were also directly involved in the marketing of specific industrial/commercial crops such as tea, rubber, sugar, oil palm, and coconuts, which were major, export crops of the region.

An efficient marketing system is essential for the development of the agricultural sector. In as much as it provides outlets and incentives for increased production, the marketing system contributes greatly to the commercialization of subsistence farmers. Failure to develop the agricultural marketing system is likely to negate most, if not all, efforts to increase agricultural production (FAO, 2000). It is expected that future agricultural growth would largely accrue from improvements in productivity of diversified farming systems with regional specialization and sustainable management of natural resources, especially land and water. Effective linkages of production systems with marketing, agro-processing and other Value added activities would play an increasingly important role in the diversification of agriculture (MoA, GoI 2001).

The Government provides much of the infrastructure required for efficient marketing. One of the most important is the information and extension services to farmers besides transport & communication facilities, public utility supply, like water, electricity, fiscal and trade administration and public storage, market and abattoir facilities (FAO, 2000).

Challenges in Agricultural Marketing System

- Market size is large and continuously expanding, but marketing system not kept pace
- Private trade is 80% marketed surplus
- Direct marketing “farmer – consumer “ is negligible
- 85% of the 27,294 rural periodic market, facilities for efficient trade is still almost absent
- 7161 market yards/sub yards is inadequate, ill equipped and mismanaged
- Due to lack of proper handling at farm gate lead to 30 % F&V, 7% grains, 10% spices loss before reaching market
- Rs 50,000 crores /year lost due to poor marketing chain

- **Risk bearing:** In both the production and marketing of produce the possibility of incurring losses is always present. Market risks are those of adverse change in the value of the produce between the processes of production and consumption.
- **Storage of farm produce:** Whether storage takes place on the farm or in silos off the farm, increases in the value of products due to their time utility must be sufficient to compensate for costs at this stage, or else storage will not be profitable. These costs will include heating, lighting, chemical treatments, store management and labour, capital investment in storage and handling equipment, interest charges and opportunity costs relating to the capital tied up in stocks. Among the less tangible costs is the risks attached to storage. These include shrinkage due to piferage, pests, fungal growths and loss of quality due to ageing. Another risk is that demand could fall with adverse effects on prices.
- **Grading :** It is important to have a grading system, which accurately describes products in a uniform and meaningful manner. Grades and standards contribute to operational and pricing efficiency by providing buyers and sellers with a system of communicating price and product information. By definition, commodities are indistinguishable from one another. However, there are differences between grades and this has to be communicated to the market. By the same measure, buyers require a mechanism to signal which grades they are willing to purchase and at what premium or discount. Prices vary among the grades depending upon the relative supply of and demand for each grade. Since the value of a commodity is directly by its grade, disputes can and do arise.
- The absence of grades and standards restricts the development of effective and efficient marketing systems.
- **Standardization :** is concerned with the establishment and maintenance of uniform measurements of produce quality and /or quantity. This function simplifies buying and selling as well as reducing marketing costs by enabling buyers to specify precisely what they want and suppliers to communicate what they are able and willing to supply with respect to both quantity and quality of product. In the absence of standard weights and measures trade either becomes more expensive to conduct or impossible altogether
- **Processing:** Most agriculture produce is not in a form suitable for direct delivery to the consumer when it is first harvested. Rather it needs to be changed in some way before it can be used. Of course, processing is not the only way of adding value to a product. Storing products until such time as they are needed adds utility and therefore adds value. Similarly, transporting commodities to purchasing points convenient to the consumer adds value. In short, any action, which increases the utility of the good or service to prospective buyers, also adds value to that product or service.
- Quality differences in agricultural products arise for several reasons. Quality differences may be due to production methods and /or because of the quality of inputs used. Technological innovation can also give rise to quality differences. In addition, a buyer's assessment of a product's quality is often an expression of personal preference. Thus, for example, in some markets a small banana is judged to be in some sense 'better' than a large banana; white sugar is considered 'superior' to yellow sugar; long stemmed carnations are of 'higher quality' than short stemmed carnations. It matters not whether the criteria used in making such assessments are objective or subjective since they have the same effect in the marketplace. What does matter in marketing is to understand how the buyer assesses 'quality'.

- Sporadic success stories of using information technology by farmers are publicized. Internet technology has percolated down up to taluq level and in some states up to village level. Search engines and the present websites furnish general information presently. Agricultural Market related information on the internet is inadequate. Hence, a whole network of skilled personnel need to be engaged in collection of current information and creation of relevant websites pertaining to / serving specific needs of farmers. Creation of websites should be mandatory in different languages to equip the farmers with information. These websites should contain information like market networks, likely price trends, current prices, demand status options for sale, storage facilities etc.
- Information technology should be able to provide answers to questions like what and how much to produce, when to produce, in what form to sell, at what price to sell, when to sell and where to sell. This kind of information to the farmers with 'press a button' on the computer on a continuous updated basis. Then and only then, the much talked about IT revolution would be beneficial to farmers.
- **Market intelligence:** As far as is possible marketing decisions should be based on sound information. The process of collecting, interpreting, and disseminating information relevant to marketing decisions is known as market intelligence. The role of market intelligence is to reduce the level of risk in decision-making. Through market intelligence the seller finds out what the customer needs and wants. The alternative is to find out through sales, or the lack of them. Marketing research helps establish what products are right for the market, which channels of distribution are most appropriate, how best promote products and what process are acceptable to the market.
- Generation of data on the market intelligence would be a huge task by itself. Departments of market already possess much of the data. Hence, establishment of linkages between agriculture line departments and Departments of Market strengthens the market-led extension.
- Financing In almost any production system there are inevitable lags between investing in the necessary raw materials (e.g. machinery, seeds, fertilizers, packaging, flavorings, stocks etc.) and receiving payment for the sale of produce. During these lag periods some individual or institution must finance the investment. The question of where the funding of the investment is to come from, at all points between production and consumption, is one that marketing must address.
- Facilitating Functions: it includes product standardization, financing, risk bearing and market intelligence. Facilitating functions are those activities which enable the exchange process to take place.
- The gigantic size / mechanism of the public extension system in the country is heavily burdened with performance of multi-farious activities in the field. Extension system acts as liaison between the researcher and farmer. They are endowed with the responsibility of conveying research findings from the scientists to the farmers and feeding back the impressions of the farmers to the scientists. The new dimension of 'marketing' may overburden and become an agenda beyond their comprehension and capability.
- The public extension system is already under severe criticism for its inability to deliver the services. In the light of this, the challenge remains to motivate the extension personnel to learn the new knowledge and skills of marketing before assigning them marketing extension jobs to establish their credibility and facilitate significant profits for the farming community.

- Extension cadre development poses a new challenge to the newly designed role. The present extension system suffers from several limitations of stationery, mobility, travel allowances, personnel development, etc. There is a dire need to upgrade these basic facilities and free the extension cadres from the shackles of the hygiene factors and enthuse them to look forward for the motivating factors like achievement, job satisfaction, recognition etc

Enhanced Roles of Agricultural Extension Personnel in Light of Market Led Extension

- SWOT analysis of the market: Strengths (demand, high marketability, good price etc.), Weaknesses (the reverse of the above), Opportunities (export to other places, appropriate time of selling etc.) and Threats (imports and perishability of the products etc.) need to be analyzed about the markets. Accordingly, the farmers need to be made aware of this analysis for planning production and marketing.
- Organization of Farmers' Interest Groups (FIGs) on commodity basis and building their capabilities with regard to management of their farm enterprise.
- Supporting and enhancing the capacities of locally established groups under various schemes / programmers like watershed committees, users groups, SHGs, water users' associations, thrift and credit groups. These groups need to be educated on the importance, utility and benefit of self-help action.
- Enhancing the interactive and communication skills of the farmers to exchange their views with customers and other market forces (middlemen) for getting feedback and gain the bargaining during direct marketing ex. Rythu Bazars, Agri-mandi and Uzavar Santhaigal etc.
- Establishing marketing and agro-processing linkages between farmers' groups, markets and private processors
- Advice on product planning: selection of crops to be grown and varieties suiting the land holding and marketability of produce will be the starting point of agri-enterprise. Extension system plays an important role in providing information in this regard
- Educating the farming community: to treat agriculture as an entrepreneurial activity and accordingly plan various phases of crop production and marketing
- Direct marketing: farmers need to be informed abut the benefits of direct marketing. In some of the states, Rytu Bazars in AP, Apni Mandis in Punjab and Haryan and Uzavar Santhaigal in Tamilnadu have shown success
- Capacity building of FIGs in terms of improved production, post harvest operations, storage and transport and marketing
- Acquiring complete market intelligence regularly on various aspects of markets
- Regular usage of internet facility through computers to get updated on market intelligence
- Publication of agricultural market information in news papers, radio and Television besides internet
- Organization of study tours of FIGS: to the successful farmers/ FIGs for various operations with similar socio-economic and farming systems as the farmers learn more from each other

- Production of video films of success stories of commodity specific farmers
- Creation of websites of successful FIGs in the field of agribusiness management with all the information to help other FIGs achieve success

Required information to extension system and farmers

- Present agricultural scenario and land use pattern
- Suitability of land holding to various crops/enterprises
- Crops in demand in near future
- Market prices of crops
- Availability of inputs
- Usage of inputs
- Credit facilities
- Desired qualities of the products by consumers
- Market network of the local area and the price differences in various markets
- Network of storage and warehouse facilities available
- Transport facilities
- Regular updating of market intelligence
- Production technologies like improved varieties, organic farming, usage of bio-fertilizers and bio-pesticides, IPM, INM, and right methods of harvesting etc.
- Post-harvest management like processing, grading, standardization of produce, value addition, packaging, storage, certification, etc. with reference to food grains, fruits and vegetables, eggs, poultry, fish, etc.
- Contract farming
- Private modern terminal markets
- Food retail chains
- Food safety and quality standard
- Certification
- WTO regulations

Market Information Services

Market information is crucial to effective marketing management. Often, marketing excellence of an organization has a relationship with the way in which information is managed. Marketing excellence is the result of correct marketing decisions. Validity of the decisions depends on the information available to a manager. The way a business firm handles marketing information causes the difference between winning and losing the business game.

Market Information Services

Market Information Service (MIS) is a means of increasing the efficiency of marketing systems and promoting improved price formation. Improved information enables farmers to plan their production more in line with market demand, schedule their harvests at the most profitable times, decide to which markets they should send their produce and negotiate on a more even footing with traders.

Other benefits have been seen for traders. Improved information should enable traders to move produce profitably from a surplus to a deficit market and to make decisions about the viability of storage of produce during peak season.

A large percentage of MIS are primarily data-gathering exercises, and even this is done inadequately. MIS suffer of lack a commercial approach and significant resource constraints.

In designing a service, sustainability and commercial utility should be the prime considerations. This implies detailed research into the needs of those involved in the marketing system. It also implies tailoring the service to meet the resources available and only expanding operations when additional funds can be obtained on a long-term basis.

Defining Market Information Service

Market Information Service may operationally be defined as a service, usually operated by the public sector, which involves the collection on a regular basis of information on prices and, in some cases, quantities of widely traded agricultural products from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policymakers and others, including consumers.

Significance of Market Information Services

A Market Information Service is seen as providing "transparency," i.e. a full awareness of all parties of prevailing market prices and other relevant information. This, in turn, can contribute to "arbitrage," i.e. the act of buying at a lower price and selling at a higher price. In theory, when a marketing system functions efficiently prices at different markets are influenced by arbitrage activities of traders, i.e. "spatial arbitrage." takes place. Traders take advantage of price differences until these differences decrease to the level of transaction costs. "Temporal arbitrage" is the storing of products in order to take advantage of expected higher prices later in the season or, in some cases, in subsequent years.

Impact of Market Information Services

1. They can facilitate efficient allocation of productive resources

2. The bargaining position of farmers with traders can be improved
3. Information reduces transaction costs (i.e. the costs of selling the produce) by reducing risks. Farmers with timely and reliable information and the ability to interpret it, can decide to which market they should send their produce to maximize returns or, indeed, whether to send their produce to market at all
4. Lack of information is an entry barrier to both production and trade. Where farmers have had access to information, shifts in cropping patterns to higher value produce have been noted. In the area of trade, individuals find it difficult to begin trading without information, so reducing competition within markets
5. Market information can be particularly valuable where countries are changing over from a state-controlled marketing system to one of private enterprise, in that farmers and small traders are made more aware of market opportunities
6. By contributing to more efficient marketing, particularly improved spatial distribution, market information should be beneficial for consumers as well as farmers and traders. Information on retail prices may also, under certain circumstances, assist consumers to bargain
7. The essence of a good Market Information Service is that it should provide commercially useful information on a timely basis. Information is also useful to policy makers. This improves policy formulation as the functioning of markets comes to be better understood
8. Market information is also an important component of Early Warning systems for food security as it can assist in identifying areas of possible shortages and can highlight whether prices are above or below normal seasonal trends

Agriculture Marketing

Agri – Marketing in India refers to the mechanism and infrastructure prevalent to ensure that the produce grown by farmers is efficiently and effectively supplied to end customers, while in the process ensuring that farmers get a fair deal out of their sale, and that customers obtain the necessary produce at fair prices.

Unlike in other countries, the organized marketing of agricultural commodities in India has been promoted through a network of market yards regulated by a marketing board.

A marketing board is an organization created by many producers to try to market their product and increase consumption and thus prices. They most commonly exist to help sell farm products and are funded by the farmers of those crops. Marketing boards often also receive funding from Governments as an agricultural subsidy.

Marketing boards also sometimes Act as a pool, controlling the price of farm products by forming a legal cartel. They also fund other ventures beneficial to their members such a research. Most State Governments and UT administrations have enacted legislations to provide for the regulation of agricultural produce markets.

While by the end of 1950, there were 286 regulated markets in the country, their number as on 31st March 2006 stood at 7,566. In addition, India has 21780 rural periodical markets, about 15 per cent of which function under the ambit of regulation. The advent of regulated markets has helped in mitigating the market handicaps of producers / sellers at the wholesale assembling level. But the rural periodic markets in general and the tribal markets in particular, remained out of its developmental ambit.3

Contract Farming

Contract farming is a forward agreement between farmers and wholesalers/retailers for the production and supply of agricultural commodities and the agreement is generally made at predetermined prices. Through the agreement, the buyers can also provide technical and production support to the grower. The farmers, through the agreement, commit themselves to produce a specific commodity at the buyer-desire quality.

Need for Contract Farming

Since the Government is a major stakeholder in the contract farming (since most of the produce today is procured by the Government, it is equivalent to farmers producing only for the Government, a variation of contract farming), it is essential to reduce the load on the central and State level procurement system. Contract farming also paves way for private investment which has the potential to boost the entire sector. Contract farming also brings about a market focus in terms of the selection of crops so that farmers could grow that crop and benefit from it immensely. Farmers get a stable, consistent income through contract farming and this Acts as on incentive for the farmer to produce quality produce and also add value to it (like removing the husk and selling only the pulse inside). Contract farming also generates employment in the sense that for an landless agricultural farmers, contract farming might prove to be a source of sustenance. Contract farming also promotes rural self-reliance by utilizing the local resources to meet the challenges.

Challenges of Contract Farming in India

- Outdated laws and regulations
- Strong attachment to the existing system
- Conflicting Central and State policies
- Lack of cross sectoral interactions
- Government crowding out the fields The contractual agreement encompasses three areas viz., market (grower and buyer agree for future sale and purchase), resource (buyer agrees to supply inputs and technical advice) and management specifications (grower agrees to follow the recommended practices for the crop cultivation). One of the reasons for contract farming coming into existence in India was the Land Ceilings Act which stipulated that “agribusiness firms cannot own and cultivate land for their raw materials requirements, to overcome the difficulties encountered in procuring from the open market, especially in perishables”. Therefore, the only option for agribusiness firms was to go in for contract farming to safeguard their interests.

Models of Cooperative Marketing

Brief History

The year 1945-46 is a landmark in the history of cooperatives in India. Support to farmers’ cooperatives came from various quarters-political leaders, scholars, influential cooperative movement leaders, powerful bureaucrats, bankers and other prominent personalities. They all rightly believed that agro-processing and marketing cooperatives, (on the line developed in many European countries such as Holland, Denmark) were the key to resolving the age old problem of getting farmers a fair deal to improve their net income and with it, their standard of living. The central tenet was that as long as the

farmer himself did not have position of strength and control of the market, he would continue to suffer. Hence, production enhancement efforts must be preceded and adequately matched by output marketing efforts. They envisaged cooperatives to be 'Poor man's Company. Further they could be involved in processing and marketing business that would substantially add value to their produce and increase the net income of farmer shareholders of the cooperatives as any other private companies.

Two leaders emerged-Tribhuvandas Kisibhai Patel and Vitthalrao Vikhe-Patil in Gujarat and Maharashtra respectively. Patel formed the first milk producers' cooperative union in 1946 in Kaira district, and Vikhe-Patil organized the first cooperative sugar factory at Prawara in 1948 in Ahmednagar district. From the beginning it was insisted that only producer farmer, i.e., milk producers and sugarcane growers would be members of their respective societies. Each registered member was required to give pre-determined quantity of his produce to the society. The quality was determined on the basis of his assets (land in case of sugarcane and milch animals in case of milk).

The unit of planning in both these instances was not the village block or district per se, but the command area required to supply the quantity of raw material needed to meet the installed capacity of the processing plant. This was flexible; the area could be enlarged with increased processing capacity, or greater availability (due to higher productivity and/or increase in membership), and plant capacity could be expanded. Market demand for products of processing also helped determine plant capacity. The dynamic integration between the market and members' interest was instrumental in business development planning and growth of the cooperatives.

These cooperatives employed highly qualified professional managers and expert technocrats, all working with team spirit.

Patel relied on V. Kurien as technocrat-manager and together they built world famous brand "AMUL-The Taste of India" Kurien said, "The basic philosophy of the Anand pattern is to combine India's greatest asset, the power of its people, with professional management, in a vertically integrated cooperative structure that establishes a direct linkage between those who produce milk and those who consume it (either as milk or milk products). The structure transfers to the producer the largest share of consumers' rupee, creating an incentive to improve production. By placing the farmer in command, as owner of his cooperative, it involves him in the process of development. The democratic form of cooperative provides an underpinning for democracy in the country through a foundation of democratic institutions right down to village level." (Heredia 1997).

Vikhe-Patil also developed a large, very cost-effective Prawara Cooperative sugar factory with the team work of technocrats and professional managers and enlightened leaders.

After their success, these "Poor Farmers' Companies" undertook development activities for the member-producers in particular and village communities in general. AMUL set up an animal husbandry department to provide inputs and services (cattle feed, veterinary and artificial insemination) to enhance milk production; modern cattle feed compounding factory; an agricultural division to encourage production of fodder crops; mobile veterinary scheme and 24 hour veterinary service anywhere in the 760 villages at short notice; extended the animal health as well by providing mobile clinics and family welfare services, Concern for hygienic milk production led to pipe water schemes and bio-gas plants in villages which helped meet human needs as well.

The Prawara Cooperative Sugar Factory has a modern housing colony for workers with all modern urban facilities. Initially there were no proper roads. The cooperative built nearly 40 miles of roads for better

transport of sugarcane. It established a water supply society for meeting crop requirements, comprising of well-digging, percolation tanks and lift irrigation schemes. The Prawara Education Society set up numerous institutions from 1964 onwards and Prawara Medical Trust has run a modern hospital from 1975 onwards.

Most importantly, these, nearly 60 year old successfully operating pioneering activities, have served as models for other cooperatives in their respective regions. Almost all district milk cooperatives in Gujarat offer services similar to those of AMUL and in Maharastra sugar cooperatives have replicated the Prawara set of institutions. Today out of about 481 sugar factories in India, 265 are under cooperative fold, 147 under Jt. Stock companies and 69 under public sector.

AMUL Model also spread widely. Under chairmanship of Dr. V. Kurien the National Dairy Development Board (NDDB) has organized about 74,0000 cooperatives representing eight million farmers and its dairies supplied a major share of milk to most cities including the metros.

Prawara and AMUL, the new generation of Indian cooperatives, now nearly 60 year old, provide the best indigenous models of effective and efficient agri-business development. Amul Model Salient features of this model are

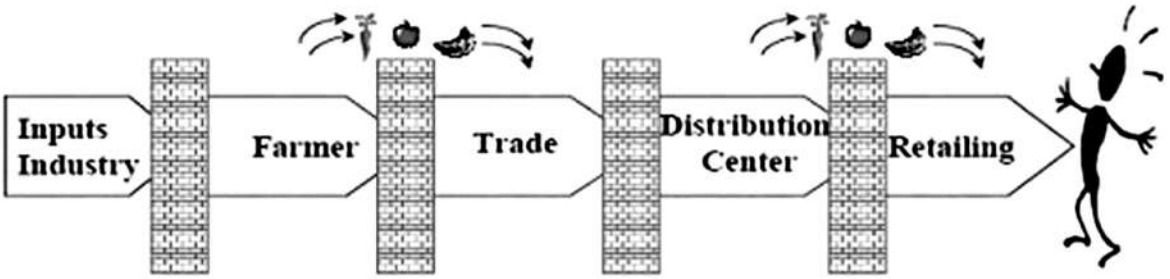
1. Formation of Primary milk-producers cooperatives (PMPC) at village level. Milk collection centre at village level is operated by paid PMPC secretary. Collection of milk is done twice daily. Farmers bring milk at the collection centre, where after weighing and quality check entries are made in the farmers' books as well as in record register of the centre. Quality check includes separation of cows and buffalo's milk and fat content (on the basis of which payment is made at predetermined price). Payments are made to the farmers regularly.
2. Union of PMPS at district level is an elected body of members and office bearers. Milk processing plants and plants for other milk products are located at union level. The Union procures raw milk from member societies; manages milk and milk product processing plants, cattle feed plant; marketing of milk and milk products; extension services related to animal husbandry and fodder crops; cattle and human insurance. It also provides family welfare, health and hygiene related services at village level through such schemes as pipe water scheme and bio-gas plants.
3. For procurement of milk from nearly 800 villages twice daily, the Union has milk tankers which collect milk twice a day from PMPS and depending on the distance of the PMPS, delivery it to chilling plants at intermediary level or directly to Union milk processing plant. The logistics is worked out to minimize cost as well as time since milk is a perishable commodity.

Supply Chain Management

Supply chain management (SCM) represents the management of the entire set of production, manufacturing/ transformations, distribution and marketing activities by which a consumer is supplied with a desired product. The practice of SCM encompasses the disciplines of economics; marketing, logistics and organizational behaviour to study how supply chains are organized and how institutional arrangements influence industry efficiency, competitions and profitability.

Supply Chain Management – An overview

SCM provides a means to conceptualize management of the changes required in the system to efficiently respond to consumer needs, based on integration and co-ordination of the efforts of all the business units involved in the production and delivery processes.



Managing supply chains requires an integral approach in which chain partners jointly plan and control the flow of goods, information, technology and capital from 'farm to fork', meaning from the suppliers of raw materials to the final consumers and vice versa.

Supply chain management results in lower transaction costs and increased margins. Because of the many activities and aspects involved it demands a multidisciplinary approach and sustainable trade relations. Supply chain partnerships are based on interdependence, trust, open communication and mutual benefits.

Interest in supply-chain management (SCM) in the agribusiness sector emerged as recently in the 1990s, but has grown rapidly as a result of a number of internal and external pressures, and is now a key area of research and commercial activity in the sector. The advantages of the supply chain management approach are numerous. Some important advantages are:

Reduction of product losses in transportation and storage.

Dissemination of technology, advanced techniques,

Capital and knowledge among the chain partners.

Better information about the flow of products, markets and technologies.

Transparency, Tracking & tracing to the source.

Better control of product safety and quality.

Large investments and risks are shared among partners in the chain.

Stages of Supply chain

In general, supply chain may involve a variety of stages. The supply chain stages include;

- Customers
- Retailers
- Wholesalers/Distributors
- Manufacturers
- Component / Raw material suppliers

Fig 1.1 Stage of a Detergent Supply Chain

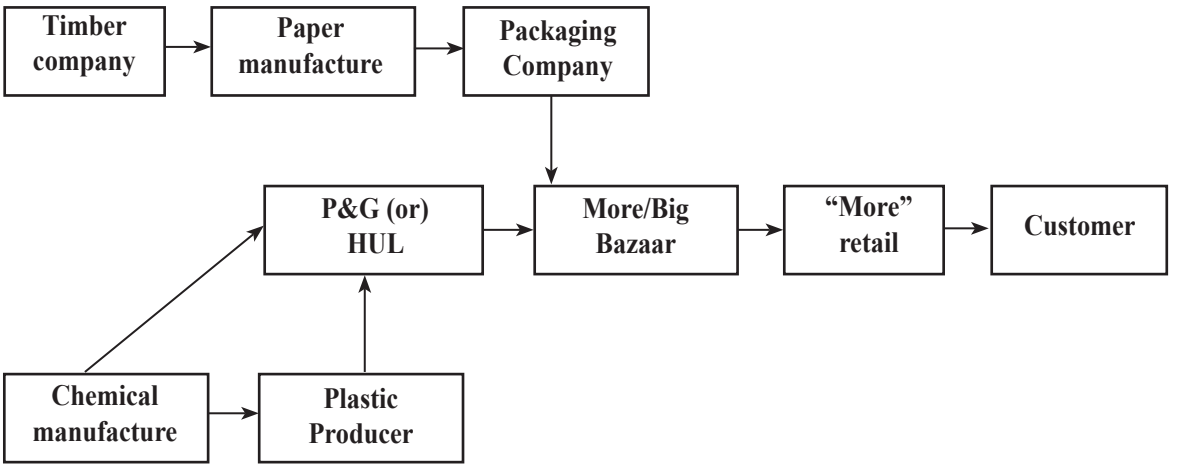


Figure 1.1 represents the detergent supply chain starting from Raw materials (timber company, paper manufacturer, Packaging company, Chemical supplier, plastic producer), Manufacturer (P&G, HUL), Wholesaler (More/ Big bazaar), Retailer (Kannan departmental store/ More) and finally customer

Issues in supply chain management

The first issue in supply chain management is the relationship between members of the chain. This issue is informed by a substantial business and management literature on strategic alliances, but by relatively little literature on the process in relation to agriculture and agribusiness. Relationship issues to be considered include:

- Sharing long term development goals and seasonal business planning,
- the relationships between operational staff within the businesses on issues such as timing , amount, ripeness and temperature of deliveries,
- the development of shared quality and safety standards and how they will be measured and monitored;
- the information systems to track product and standards. The relationship may include shared access to inventory control systems and to sales performance data.

At the farmer level a key preliminary step is often the development of relationships between individual farmers to create a trading entity with capacity to supply sufficient quantity and continuity to be a credible supply chain member. This may be championed by a farmer, by another member of the chain, or by an external facilitator or manager. Hence the technical and professional issues in supporting the operation of supply chains may include facilitating:

- the development of relationships between farmers to allow their participation
- the development of relationships between members of the supply chain
- information flows between members of the supply chain
- establishing common standards between members of the supply chain •optimising performance within each level of the supply chain and in the linkage processes.
- Promotion activities needed in Agri-Chain Development
- Public private partnership in needed.
- Investing in transportation, communication and electricity.
- Subsidies or co-financing supply for high -risk investments.
- Ensure the availability of (production, price, industry) information and statistics to facilitate market activity and to monitor market progress.

Market Communications for Organic Products

Organic market development can be compared with a public education campaign. Convincing consumers of their interest to support additional production and social requirements is a long-term affair. Often consumers are initially mostly attracted to organic because of personal reasons, but the challenge is in communicating and cultivating the consumers' primary enthusiasm to get their support for the non-direct consumer benefits. Some assurance of compliance with organic standards will be necessary.

The following is a list of the most common methods applied:

- Consumers Meetings: IIRD, for example, organises consumers meetings in association with **Consumers Meeting** women's groups and social clubs like the Lions, Rotarians, etc. to discuss the importance of organic agriculture, food security and health. While providing information about upcoming organic bazaars, the IIRD also discusses strategies on how citizens may decrease environmental pollution. Invitations letters to directly invite individuals or organisations to activities and special events. eaflets: Promotional materials are printed in mass quantities and distributed, providing information about the organisation, products, and sometimes activities. The format is generally a one to two pages leaflet.
- **Printing and Distribution of Leaflets:**
- **Mass media:** Articles are published in the printed media such as newspapers and magazines,
- **Mass media :** describing the benefits of organic agriculture. Many organisations maintain relationships with journalists who are interested in the issue and support the organic movement. Press conferences are sometimes held and press releases are another way to further the local organic movement.
- **Advertisements :** Several organisations regularly advertise in local newspapers that have wide circulation. Placing banners in strategic locations within the city may also be attempted. In addition,

stills or moving ads may be broadcasted through local TV network. This is, however, a relatively expensive strategy and may not always bring the anticipated results. However, Green Net continues to adopt a policy of no advertisement.

- **Direct Marketing:.** The bazaar, market or shop itself presents a forum for person-to-person

Direct Marketing : marketing of organic products. This forum allows consumers to inquire about organic products or agriculture directly from the producer or staff of the marketing organisation. Direct marketing may also be undertaken through door-to-door campaigns or over the phone. However, the latter methods are time consuming and labour-intensive.

Word of Mouth: Publicity may also be generated through personal interactions among consumers. If consumers are satisfied with the organic bazaar, market or shop and their purchases, they may recommend it to their friends and colleagues. This would also help to spread information about organic agriculture and the organic movement in general. Many organisations have benefited from this kind of "advertisement" in their start up phase.

- **Word of Mouth :**
- **Field Visits** : Many organisations organise regular meetings between consumers and organic producers. By sharing experiences and offering suggestions, these meetings have been found to be useful to both parties.
- **Consumer Newsletter :** Some organisations send regular newsletter to their members or regular customers. These newsletters include information about upcoming events, articles about organic agriculture or health issues, recipes, etc. To this end, these organisations have prepared a consumer register with the names of regular consumers and members.
- **Fairs:** Organic producers could display and sell their products at these events, which are regularly organised in most countries at both the national and local level.
- **Participation in Trade and Food Fairs:**

खेती की नई तकनीक

बीजोपचार

है उद्देश्य हमारा
फसलों को रोगों से छुटकारा

बीजोपचार  स्वस्थ फसलें

हर बीज को सुरक्षा का टीका

जैसे की हर बच्चे को पोलियो का टीका

किसान कॉल सेन्टर

मुफ्त फोन सेवा डायल करें।

1551

कृषि समस्याओं का विशेषज्ञों द्वारा निःशुल्क समाधान

1800 180 1551

मुफ्त फोन सेवा डायल 1551

समय – प्रातः 6:00 बजे से 10:00 बजे रात तक।