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National Institute of Agricultural Extension Management
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Dr. P. Chandra Shekara,
Director General
National Institute of Agricultural Extension Management (MANAGE)
Rajendranagar, Hyderabad – 500030. India.

Principal Coordinator
Dr. Veenita Kumari, Deputy Director (Gender Studies), MANAGE

Contributors (2007)
Dr. R. K. Samantha, Former VC, Bidhan Chandra Krishi Vishwavidyalaya, Nadia, West Bengal

Contributors (2013)
Dr. S. Senthil Vinayagam**,** Director (Agril. Extn.) & Principal Coordinator (PGDAEM), MANAGE
Dr. P. Chandra Shekara, Director (Agril. Extn.) & Director (CAD), MANAGE
Dr. Kareem, Deputy Director (Agril. Extn.), MANAGE
Dr. Uma Rani, Deputy Director, MANAGE
Dr. N. Balasubramani, Deputy Director (OSPM) & P.C (DAESI), MANAGE
Dr. B. Renuka Rani, Assistant Director (HRD), MANAGE
Shri. P. Venkat Reddy, consultant (DAESI), MANAGE
Dr. Vijayabhinandan, Professor (Dept. of Agril. Extn.), ANGRAU
Dr. V.K. Jayaraghavendra Rao, Professor & Principal S, NAARM
Dr. Bharat S. Sontakki, Professor & P.S., NAARM
Dr. R. Venkatakumar, Professor & P.S.NAARM
Dr. R. M. Prasad, Retd. Professor & Associate Director of Research, K.A.U.

Contributors (2021)
Dr. M.A Kareem, Ex-Deputy Director (Agril. Extn.), MANAGE.
Dr. M. Surya Mani, Professor (Retd.), Ex- Director, EEI, Hyderabad.

BLOCK I: PRESENT SCENARIO OF AGRICULTURAL EXTENSION

UNIT-1

CONCEPT, OBJECTIVES, PRINCIPLES, PHILOSOPHY, AND PROCESS OF EXTENSION

Highlights of the Unit

- Objectives
- Introduction
- Concept of Agricultural Extension
- Extension Objectives and Function to Support
- Achieving Agricultural Development
- Principles of Agricultural Extension
- Philosophy, Needs and Levels of Agricultural Extension
- Process and Steps involved in Agricultural Extension
- Let's sum Up
- Check your progress
- Suggested readings/ references

1.0 OBJECTIVES

After going through this unit, the learners will be able to:

- understand the meaning and concept of agricultural extension;
- Discuss the objectives, principles and philosophy in reaching farmers and other clients effectively;
- Describe the process and steps involved in agricultural extension in the transfer of technology;

1.1 INTRODUCTION

The focus of Agriculture in India and in developing countries is shifting from subsistence Agriculture to Agriculture for quality of life through improvement livelihood scrutiny. India has the second largest extension system in the world in terms of professional and technical staff. India is in the process of transforming its

agricultural extension systems to become more demand driven and responsive to farmer's needs.

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.

Agriculture Extension is generally described 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 central in formulating and disseminating knowledge and in teaching farmers to be competent decision makers.

1.2 CONCEPT OF AGRICULTURAL EXTENSION

The Concept of 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. Term `extension education' used first in 1873 by Cambridge University, to carry 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 facets 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.

Extension or Agricultural extension, the common terminology, is an applied social science, relatively away from the basic. This has to be understood and acted upon for the good of the working environment; we learn from the basic to the applied.

According to Ensminger (1957), extension is education and that 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.

In addition to practicing in the field, extension is formally taught in colleges and universities leading to the award of degrees. Research is also carried out in extension. What is unique for extension is the application of the knowledge of this discipline in socio-economic transformation of the rural communities. In this context, ***Extension may be defined as the science of developing capability of the people for sustainable improvement in their quality of life.*** The main aim of extension is human resource development.

The concept of extension is based on the following basic premises:

1. People have unlimited potential for personal growth and development.
2. The development may take place at any stage of their lives, if provided with adequate and appropriate learning opportunities.
3. Adults are not interested in learning only for the sake of learning. They are motivated when new learning provides opportunity for application, for increased productivity and improved standards of living.

4. Such learning is a continuous level of rural populations and should be provided on a continuing basis, because the problems as well as the technologies of production and living are continuously changing.
5. Given the required knowledge and skills, people are capable of making optimal choices for their individual and social benefits.

1.3 EXTENSION OBJECTIVES AND FUNCTIONS TO SUPPORT ACHIEVING AGRICULTURAL DEVELOPMENT

1.3.1 Extension objectives

The general objectives of extension are –

1. To assist people to discover and analyze their problems and identify their felt 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 farm management problems.

1.3.2 Functions of Extension

Change in knowledge - means change in what people know. For example, farmers who did not know of a recent HYV crop came to know of it through participation in extension programmes. The Extension Agents (EAs) who did not know of Information Technology (IT) came to know of them after attending a training course.

Change in skill - is change in the technique of doing things. The farmers learnt the technique of growing the HYV crop which they did not know earlier. The EAs learnt the skill of using IT.

Change in attitude - involves change in the feeling or reaction towards certain things. The farmers developed a favourable attitude towards the HYV crop. The EAs developed a favourable feeling about the use of IT in extension programme.

Change in understanding - means change in comprehension. The farmers realized the importance of the HYV crop in their farming system and the extent to which it was economically profitable and desirable, in comparison to the existing crop variety. The EAs understood the use of IT and the extent to which these would make extension work more effective.

Change in goal - is the distance in any given direction one is expected to go during a given period of time. The what extent farmers raised their goal in crop production, say, increasing crop yield in a particular season by five quintals per hectare by cultivating the HYV crop. The EAs set their goal of getting an improved practice adopted by the farmers within a certain period of time by using IT.

Change in action - means change in performance or doing things. The farmers who did not cultivate the HYV crop earlier cultivated it. The EAs who earlier did not use IT in their extension programmes started using them.

Change in confidence - involves change in self-reliance. Farmers felt sure that they have the ability of raising crop yield. The EAs developed faith on their ability to do better extension work. The development of confidence or self-reliance is the solid foundation for making progress.

To bring desirable change in behaviour is the crucial function of extension - For this purpose, the extension personnel shall continuously seek new information to make extension work more effectively. The farmers and home makers also on their own initiative shall continuously seek means of improving their farm and home.

The task is difficult because millions of farm families with little education, scattered in large areas with their own beliefs, values, attitudes, resources and constraints are pursuing diverse enterprises.

1.4 PRINCIPLES OF AGRICULTURAL EXTENSION

Principles of 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. **Grass roots 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, whey to do, how to do and with what result.
6. **Principle of participation:** Most people of the village community should willingly co-operate 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.

1. **Family principle:** Family is the primary unit of society. The target for extension work should, therefore, 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.
2. **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 of 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.
3. **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.

4. **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.
5. **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.

1.5 PHILOSOPHY, NEEDS AND LEVELS OF AGRICULTURAL EXTENSION

The Philosophy of Extension

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 inspiring, supplying specific advice and technical help, and counselling 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 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, needs 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 is interrelated, but at the same time maintains their separate identity.

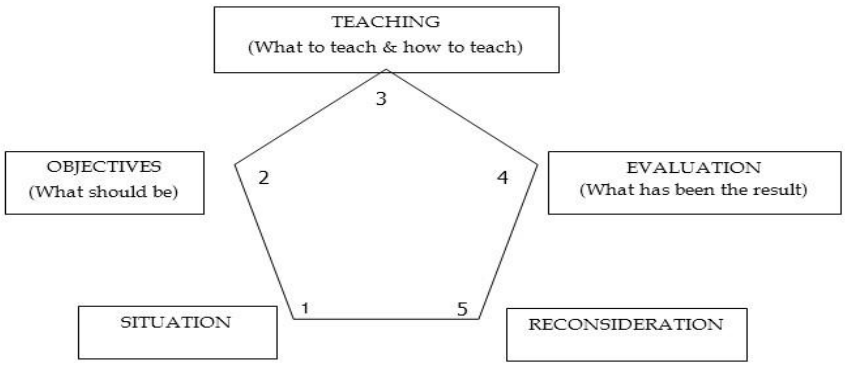
Extension Education – The extension education role is generally performed by the higher learning institutions like the Agricultural and other Universities and Colleges, ICAR Institutes, Home Science Colleges and apex level Training and Extension Organizations. At the university level, extension is integrated with teaching and research, while at the research institutes, extension is integrated with research. At the other apex level organizations, extension is generally integrated with training in extension.

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.

1.6 PROCESS AND STEPS INVOLVED IN AGRICULTURAL EXTENSION

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 behavioural changes in people as well as desired economic and social outcomes.

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 on 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.

1.7 LET'S SUM UP

The chapter on Concept, Objectives, Principles, Philosophy, and Process of Extension explains the meaning and concept of agricultural extension, principles and philosophy in reaching farmers and other clients effectively and describes the process and steps involved in agricultural extension in the transfer of technology to an extension personnel.

1.8 CHECK YOUR PROGRESS

1. What do you understand by the term extension education?
2. What are the basic premises that led to the development of extension concept?
3. List out briefly the objectives of extension?
4. Describe the functions of extension?
5. Explain in detail about the principles of extension?
6. Justify that extension is a process?

1.9. SUGGESTED READINGS/ REFERENCES:

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UNIT-2

EVOLUTION OF AGRICULTURAL EXTENSION, CHANGE AGENT/ EXTENSION AGENT

Highlights of the Unit

- Objectives
- Introduction
- Community Development programmes
- Community development programme (CDP) – Foundation for extension programmes in agriculture
- Extension Strategy for Agricultural Development
- Agricultural Development and Extension programmes
- Various Client focussed programmes and Projects in Agricultural Development
- Extension Programs in Other Countries
- Change Agent / Extension Agent
- Let's sum Up
- Check your progress
- Suggested readings/references

2.0 OBJECTIVES

After going through this unit, the learners will be able to:

- Know the genesis of agricultural extension and its programme activities.
- Familiarize themselves with the various development programmes in agriculture and allied areas to help farmers.
- Get acquainted with different facets of Community Development Programmes.
- Know specific agriculture extension programs in India and other countries.

2.1 INTRODUCTION

Agricultural extension is a general term meaning the application of scientific research and new knowledge to agricultural practices through farmer education. The field of **extension** now encompasses a wider range of communication and learning activities organized for rural people by professionals from different disciplines, including agriculture, agricultural marketing, health, and business studies.

The term extension was first used to describe adult education programmes in England in the second half of the 19th century; these programmes helped to expand - or extend - the work of universities beyond the campus and into the neighbouring community. The term was later adopted in the United States of America, while in Britain it was replaced with "advisory service" in the 20th century. A number of other terms are used in different parts of the world to describe the same or a similar concept.

The objectives of Extension Education are:

- **"Life-Long Learning"**
- Provide programs for off-campus adults from various walks of life to **continue learning** and obtaining further knowledge and skills
- Providing an excellent channel and opportunity for people to meet the needs of **self-growth** and for society.

2.1.1 Definition

The term extension was first used in the United States of America in the first decade of this century to connate the extension of knowledge from land grant colleges to the farmers through the process of informal education. In India, extension work was primarily started by F.L. Brayne (1920) in Punjab. The term community development and extension education became more popular with the launching of community development projects in 1952 and with the establishment of the national extension service in 1953, Since then, community Development has been regarded as a

programme for all-round development of the rural people and extension education as the means to achieve this objective.

Definition and Concepts

1. Extension Education deals with practical items of information which is useful for rural people which solve their daily problems, especially those related to agricultural production. (Thorat)
2. Extension Education is an integral behavioural science which contributes towards the understanding and formulation of methods and procedures for bringing planned change in human behaviour.
3. Extension education is education for the betterment of people and for changing their behaviour i.e. knowledge, skill and attitude.
4. Extension education is the dissemination of useful research findings and ideas among rural people to bring out desirable changes in their social and cultural behaviour.
5. Extension education is an applied science consisting of contents derived from researches, accumulated field experiences and relevant principles drawn from the behavioural sciences synthesized with useful technology, in a body of philosophy, principles, contents, and methods focused on the problems of out at school education for adults and youths. (Leagans. J.P.)
6. Extension education in an applied behavioural science, the knowledge of which is to be applied for desirable changes in the behavioural complex of the people.
7. Extension is education and its purpose is to change the attitude and its purpose is to change the attitude and practices of the people with whom the work is done.
8. Extension education is a science which deals with various strategies of change in the behavioural patterns of human beings through technological and scientific innovation for the improvement of their standard of living.

9. Extension is to teach a person how to think, not what to think, and to teach people, to determine accurately their own needs to find solution to their own problems and to help them acquire knowledge and develop convictions in that direction.
10. Extension is an out-of school system of education in which adults and young people learn by doing. It is a partnership between government, the land grant colleges and the people, which provider services and education designed to meet the needs of the people

2.1.2 Importance, scope & objectives of Extension Education Importance

1. Extension uses democratic methods in educating the farmers.
2. Extension helps in adoption of innovations.
3. Extension helps in studying and solving the rural problems.
4. Extension increases farm yields and improve the standard of living of farmers
5. Extension makes good communities better and progressive.
6. Extension contributes to national development programmes

Scope of Extension

It includes all activities of rural development. So extension programmes should be dynamic and flexible. The areas indicating scope of Extension are listed below

Increasing efficiency in agricultural production:

1. Increasing efficiency in marketing, distribution and utilization of agricultural inputs and outputs
2. Conservation, development and use of natural resources.
3. Proper farm and home management
4. Better family living.
5. Youth development.
6. Leadership development.
7. Community and rural development.

8. Improving public affairs for all round development.
9. To raise the standard of living of the rural people by helping them in right use of their resources.
10. To help in planning and implementing the family and village plans for increasing production in various occupations.
11. To provide facilities for better family living.
12. To provide knowledge and help for better management of farms and increase incomes.
13. To encourage the farmers to grow his own food, eat well and live well.
14. To promote better social, natural recreational intellectual and spiritual file among the people.
15. To help rural families in better appreciation of SWOT in the village.
16. To open new opportunities for developing talents and leadership of rural people.
17. To build rural citizens who are:
18. Proud of their occupation
19. Independent in thinking.
20. Constructive in outlook.
21. Capable, efficient and self-reliant in character
22. Having love of home and country m their heart

Seven reasons why Extension is needed today

1. We are sustainers: of green revolutions
2. We are catalysts: of change – NAIP
3. We are an agency of empowerment: SHG/WIG/CIG
4. We are human infrastructure: Multiplier effect
5. We are contextualizers: more than GOOGLE-how to use it
6. We are synergists: ICAR-SAU-DEPT-FARMERS
7. We are collaborators: PPP mode ICT etc.

The central task of extension is to help rural families help themselves by applying science, whether physical or social, to the daily routines of farming, homemaking, and family and community living.

[1] 1965: Agricultural extension has been described as a system of out-of-school education for rural people.

[2] 1966: Extension personnel have the task of bringing scientific knowledge to farm families in the farms and homes. The object of the task is to improve the efficiency of agriculture.

[3] 1973: Extension is a service or system which assists farm people, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living and lifting social and educational standards.

[4] 1974: Extension involves the conscious use of communication of information to help people form sound opinions and make good decisions.

[5] 1982: Agricultural Extension: Assistance to farmers to help them identify and analyse their production problems and become aware of the opportunities for improvement.

[6] 1988: Extension is a professional communication intervention deployed by an institution to induce change in voluntary behaviours with a presumed public or collective utility.

[7] 1997: Extension [is] the organized exchange of information and the purposive transfer of skills.

[8] 1999: The essence of agricultural extension is to facilitate interplay and nurture synergies within a total information system involving agricultural research, agricultural education and a vast complex of information-providing businesses.

[9] 2004: Extension [is] a series of embedded communicative interventions that are meant, among others, to develop and/or induce innovations which supposedly help to resolve (usually multi-actor) problematic situations.

[10] The term "university extension" was first used by the Universities of Cambridge and Oxford in 1867 to describe teaching activities that extended the work of the institution beyond the campus. Most of these early activities were not, however, related to agriculture. It was not until the beginning of the 20th century, when colleges in the United States started conducting demonstrations at agricultural shows and giving lectures to farmer's clubs, that the term "extension service" was applied to the type of work that we now recognize by that name.

In the United States, the Hatch Act of 1887 established a system of agricultural experiment stations in conjunction with each state's land-grant university, and the Smith-Lever Act of 1914 created a system of cooperative extension to be operated by those universities in order to inform people about current developments in agriculture, home economics, and related subjects.

Three acts passed by the US has paved way for the present Agricultural Extension system in India:

1. ***The Hatch act*** *established the Agricultural experiment stations;*
2. ***The Morrill act*** *has paved way for the creation of Agricultural Universities on the Land grant college pattern;*
3. ***The Smith Lever act*** *of 1914 which has paved a way for the establishment of Cooperative extension service, similar to our Departments of Agriculture and other line departments*

HATCH ACT

The Hatch Act of 1887 (ch. 314, 24 Stat. 440, enacted 1887-03-02, 7 U.S.C. § 361a et seq.) gave federal funds, initially of $15,000 each, to state land-grant colleges in order to create a series of agricultural experiment stations, as well as pass along new information, especially in the areas of soil minerals and plant growth. The bill was

named for Congressman William Hatch, who chaired the House Committee of Agriculture at the time the bill was introduced. State agricultural stations created under this act were usually connected with those land-grant state colleges and universities founded under the Morrill Act of 1862, with few exceptions.

Many stations founded under the Hatch Act later became the foundations for state cooperative extension services under the Smith-Lever Act of 1914.

Congress amended the act in 1955 to add a formula that uses rural and farm population factors to allocate the annual appropriation for agricultural experiment stations among the states. Under the 2002 farm bill (P.L. 107-171, Sec. 7212), states will continue to be required to provide at least 100% matching funds (traditionally, most states have provided more). On average, Hatch Act formula funds constitute 10% of total funding for each experiment station. (7 U.S.C. 361a et seq.).

MORRILL ACT

The **Morrill Land-Grant Acts** are United States Statutes that allowed for the creation of land-grant colleges, including the **Morrill Act of 1862** (7 U.S.C.§ 301 et seq.) and the **Morrill Act of 1890** (the **Agricultural College Act of 1890,** (26 Stat.417, 7 U.S.C. § 321 et seq.) Land-grant colleges

The purpose of the land-grant colleges was:

Without excluding other scientific and classical studies and including military tactic, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.[4]

Under the act, each eligible state received a total of 30,000 acres (120 km2) of federal land, either within or contiguous to its boundaries, for each member of congress the state had as of the census of 1860. This land, or the proceeds from its sale, was to be

used toward establishing and funding the educational institutions described above. The 1862 Act was extended to the former Confederate states; it was eventually extended to every state and territory, including those created after 1862. If the federal land within a state was insufficient to meet that state's land grant, the state was issued "scrip" which authorized the state to select federal lands in other states to fund its institution.[5] For example, New York carefully selected valuable timber land in Wisconsin to fund Cornell University.[6] The resulting management of this scrip by the university yielded one third of the total grant revenues generated by all the states, even though New York received only one-tenth of the 1862 land grant.[7] Overall, the 1862 Morrill Act allocated 17,400,000 acres (70,000 km2) of land, which when sold yielded a collective endowment of $7.55 million.[8] The state of Iowa was the first to accept the terms of the Morrill Act which provided the funding boost needed for the fledgling Ames College (now Iowa State University.)

With a few exceptions (including Cornell University and the Massachusetts Institute of Technology), nearly all of the Land-Grant Colleges are public. (Cornell University, while private, administers several state-supported contract colleges that fulfill its public land-grant mission to the state of New York.)

Smith–Lever Act of 1914

The Smith–Lever Act of 1914 is a United States federal law that established a system of cooperative extension services, connected to the land-grant universities, in order to inform people about current developments in agriculture, home economics, public policy/government, leadership, 4-H, economic development, coastal issues (National Sea Grant College Program), and many other related subjects. It helped farmers learn new agricultural techniques by the introduction of home instruction.

The appropriation for cooperative extension is shared between the states based on the following formula. Once the historic amount that has been allocated for "special needs" programs is set aside [1] and an additional 4% is reserved for USDA administrative costs, the remaining funds are allocated:

- 20% shared by all States in equal proportions;
- 40% shared in the proportion that the rural population of each bears to the total rural population of the several States as determined by the census;
- 40% shared in the proportion that the farm population of each bears to the total farm population of the several States as determined by the census.

Except for the "1994 Land-grant colleges" for Native Americans, each state must match its Federal cooperative extension funds. [3]

In addition, an amount no less than 6% of the total Smith-Lever Act appropriation is appropriated for the extension programs of the "1890 Land-grant colleges" (historically black colleges). These funds are also shared between the 1890 colleges by the 20%-40%40% formula, with Alabama A & M and Tuskegee University treated as though they were in different states.

2.1.3 Four paradigms of agricultural extension

Any particular extension system can be described both in terms of both how communication takes place and why it takes place. It is not the case that paternalistic systems are always persuasive, nor is it the case that participatory projects are necessarily educational. Instead there are four possible combinations, each of which represents a different extension paradigm, as follows:

- **Technology Transfer** (persuasive + paternalistic). This paradigm was prevalent in colonial times, and reappeared in the 1970s and 1980s when the Training and Visit system was established across Asia. Technology transfer involves a top-down approach that delivers specific recommendations to farmers about the practices they should adopt.
- **Advisory work** (persuasive + participatory). This paradigm can be seen today where government organisations or private consulting companies respond to farmers enquiries with technical prescriptions. It also takes the form of projects

managed by donor agencies and NGOs that use participatory approaches to promote pre-determined packages of technology.

- **Human Resource Development** (educational + paternalistic). This paradigm dominated the earliest days of extension in Europe and North America, when universities gave training to rural people who were too poor to attend full-time courses. It continues today in the outreach activities of colleges around the world. Top-down teaching methods are employed, but students are expected to make their own decisions about how to use the knowledge they acquire.
- **Facilitation for Empowerment** (educational + participatory). This paradigm involves methods such as experiential learning and farmer-to-farmer exchanges. Knowledge is gained through interactive processes and the participants are encouraged to make their own decisions. The best known examples in Asia are projects that use Farmer Field Schools (FFS) or Participatory Technology Development (PTD).

There is some disagreement about whether or not the concept and name of extension really encompasses all four paradigms. Some experts believe that the term should be restricted to persuasive approaches, while others believe it should only be used for educational activities. Paulo Freire has argued that the terms 'extension' and 'participation' are contradictory. [7] There are philosophical reasons behind these disagreements. From a practical point of view, however, communication processes that conform to each of these four paradigms are currently being organized under the name of extension in one part of the world or another. Pragmatically, if not ideologically, all of these activities are agricultural extension.

2.2 COMMUNITY DEVELOPMENT (NOW RURAL DEVELOPMENT) AND EXTENSION SERVICE IN INDIA

The community development programme in India aiming at the all-round development of the rural people and the Extension Service as a nation-wide

organization to achieve these aims are of relatively recent origin in India. This new programme and administrative set-up of Extension Service is the outcome of several years' efforts and reforms made over the years.

The evolution of this programme and the new set-up are described in four stages:

Stage I -Pre-Independence Era (1866-1947)

Stage II - Post-Independence Era (1947-1953)

Stage III - Community Development and National Extension Service Era (1953-1960)

Stage IV - Intensive Agricultural Development Era (1960-onwards)

2.2.1 Stage I - Pre-Independence Era (1866-1947)

In India extension work has its beginning with a few outstanding individuals of a philosophic and philanthropic bent of mind. But they worked in most part in isolation with one another and without Government assistance whose interest had been roused through their official contact with the villagers. In others their imagination and sympathy enabled them to visualize a better way of life for the villagers. But the work of most of them was confined to relatively small areas. A study of the more prominent of these endeavours by Government officials, private individuals and institutions during the first half of the present century will give and insight which should be helpful in understanding the back ground of the community development.

The attempts made by the individual persons and private agencies include:

1. Etawah Project
2. Nilokheri Project
3. Gurgaon Experiment
4. Shriniketan Attempt
5. Sewagram Attempt
6. Marathandam Attempt
7. Servants' of India Society, Pune, in Tamilnadu, Uttar Pradesh and Madhya Pradesh;

8. Sir Daniel Hamilton's Scheme of Rural Reconstruction at Sundarban in Bengal;
9. Rural Reconstruction Work by Christian Missions through Allahabad Agricultural Institute: The Christian College, Nagpur;
10. Adarsh Seva Sangh, Pohri, Gwalior,
11. Sarvodaya Programme in Bombay Province.

A few attempts of extension pre-independence era are explained below:

Gurgaon Experiment

Rural uplift movement on a mass scale was first started by Mr. F.I. Brayne, Dy. Commissioner in the Gurgaon district of Punjab in 1920. The work gathered momentum after 1933 when Mr. Brayne was appointed as Commissioner of Rural Reconstruction in the Punjab. In 1935-36, the Government of India granted Rs. One crore for the work which acted as a stimulus. After that the work was transferred to the Cooperative Department and Better Living Societies were organized to take up this work in the villages.

Objectives:

1. To increase agricultural production.
2. To stop wastage of money on social and religious functions.
3. To improve healthy standard of the people.
4. To organize welfare programmes.

Shriniketan Attempt:

In 1908, Shri Rabindranath Tagore, under his Scheme of Rural Development work, started Youth Organizations in the villages in the Kaligram Pargana of his Zamindari (West Bengal). He tried to create the field workers who could identify themselves with the people. In 1921, he established a Rural Reconstruction Institute at Shantiniketan, in collaboration with Mr. L.K. Elmhirst. A group of eight villages was the centre of the programme.

Objectives:

1. To create a real interest in people for rural welfare work.
2. To study rural problems and to translate conclusions into action.
3. To help villagers develop their resources.
4. To improve village sanitation.

Sewagram Attempt:

It was started under the guidance of Mahatma Gandhi as All India Spinners Association in 1920 and later as All India Village Industries Association at Wardha in 1933. Gandhi believed that the 'Salvation of India lies in Cottages'. The focus in on

1. Decentralize production and equal distribution of wealth and
2. Self-sufficiency of Indian Villages.

Objectives:

1. To provide service to the under privileged.
2. To achieve self-dependency.
3. To provide basic education to people.

Marathandam Attempt:

This project was started by Mr. Spencer Hatch, an American Agricultural Expert in Travancore State under the auspices of Y.M.C.A. in 1921.

Objectives:

1. To bring about completed upward development towards a more abundant life for rural people spiritually, mentally, physically, socially and economically.

2.2.2 Stage II - Post-Independence Era (1947-1953)

Grow-More-Food Campaign: The urgent need for stepping up food production was realized even in the pre-Independence era and a Grow-More-Food Campaign was started. Under the campaign, targets for increased agricultural production were laid down for the first time on an all-India basis.

But the campaign failed to achieve its targets. Soon after Independence (1947), the Central Government re-defined the objectives of the Grow-More-Food Campaign as the attainment of self-sufficiency in food grains by 1952, and simultaneously increased the targets of production of other crops to meet the shortfall as a result of the partition of the country. At the same time, arrangements were made for integration and co-ordination of the entire campaign for increasing agricultural production. Some state governments associated the public with working of the campaign by setting up non-official committees at the village, taluka, district and state levels. The plans were revised from time to time to make the campaign more effective.

Grow-More-Food Enquiry Committee Report: Though efforts were made to revitalize the Grow-More-Food Campaign, it was observed that the system was not functioning properly and the cultivator's response to the programme was very poor. As a result, the Government of India in 1952 appointed a committee known as the GMF Enquiry Committee to examine the working of the Grow-More-Food Campaign.

The findings of this Committee revealed that the problem of food production was much wider than the mere elimination of food imports and that agricultural improvement was a very important part of a much wider problem of raising the level of rural life in the country. The Committee came to the conclusion that it was only by bringing about an appreciable improvement in the standards of rural life to make it fuller and richer that the rural masses could be awakened to take interest in not only increasing agricultural production but also improving their own conditions and creating a will to live better.

The Etawah Pilot Project (1948-52):

The idea of intensive all-round development work in a compact area was put into practice as a Pilot Project in Rural Planning and Development in the Etawah District in Uttar Pradesh in 1948, which can be regarded as a forerunner of the Community Development Project in India. Albert Meryger, an American Engineer, played the key role in the initiation and implementation of the project. The programme was based on

the principle of self-help, democracy, integrated approach, felt needs of the people, rigorous planning and realistic targets, institutional approach, co-operation between governmental and non-governmental organizations, close co-ordination between the extension service and the supply agencies and the collaboration by technical and social scientists. After an initial period of trial and error, a new administrative pattern was evolved. It percolated to the village level; the activities of different nation-building departments were channelled through one common agency and a multipurpose concept of village level worker was introduced. Each village level worker looked after 4-5 villages. The project was supervised by a district planning officer assisted by four specialist officers and other supporting staff.

The idea of this pilot project was conceived in 1945 but was put into action in September, 1948 at Mahewa Village about 11 miles away from Etawah in United Province. Lt. Col. Albert Mayer of U.S.A. was the Originator of this project. Initially 64 villages were selected which then increased to 97. The Government of UP and Point-4 programme of U.S.A. provided help for this project.

Objectives:

1. To see the extent of improvement possible in an average district.
2. To see how quickly results could be achieved.
3. To ascertain the permanency and applicability of results to other areas.
4. To find out methods of gaining and growing confidence of the villagers.
5. To build up a sense of community living.
6. To build up a spirit of self-help in the villagers.

Nilokheri Project:

Shri S.K. Dey later Union Minister for community Development and Cooperatives up to 1965 was the central figure of this project. It was originally started to rehabilitate 7000 displaced persons from Pakistan. Later it was integrated with 100 surrounding

villages making a rural cum urban township. The scheme was called as "Mazdoor Manzil".

Objectives:

1. Rehabilitation of the displaced persons from Pakistan.
2. Self-sufficiency for the township in all the essential requirements of life.

2.2.3 Stage III - Community Development and National Extension Service Era (1953-1960)

In India, organized extension came into being in the year 1952 with the launching of Community Development Programme followed by National Extension Service in 1953 and its education and research studies began in 1955 with the initiation of Post-Graduation Programme in Agricultural Extension Education in Agricultural College, Sabour in Bihar.

The Community Development Project (1952): As a result of the Grow-More-Food Enquiry Committee Report and the successful experience of the Etawah Project, 15 Pilot Projects were started in 1952 in selected states with the financial assistance received from the Ford Foundation. Besides helping to increase agriculture production and bettering the overall economic condition of the farmers, these projects were meant to serve as a training ground for the extension personnel. It was soon realized that for the creation of an urge among the rural population to live a better life and to achieve permanent plenitude and economic freedom in the villages, a much bolder and dynamic effort was called for. It was recognized that the success of this new effort depended upon whole hearted co-operation of the beneficiaries, government officials and non-officials at every stage, the education of rural masses in the technique of rural development and the timely provision of adequate supplies of the needed inputs and other requirements.

For undertaking this new programme, the Government of India entered into an operational agreement with the Government of the U.S.A under the Technical

Cooperation Programme Agreement. Under this Agreement, 55 Community Development Projects were started in different parts of the country on 2 October, 1952 for three years.

The Projects covered nearly 25,260 villages and a population of 6.4 million. Each project, in turn, consisted of about 300 villages covering 400-500 square miles and having a population of about two lakhs. The project area was divided into three development blocks, each comprising 100 villages and a population of 60,000 to 70,000. The development blocks, in turn, were divided into groups of 5-10 villages, each group being in the charge of a multipurpose village-level worker. The main aims of these projects were: to increase agricultural production by all possible means, to tackle the problems of unemployment, to improve village communications, to foster primary education, public health and recreation, to improve housing, to promote indigenous handicrafts and small-scale industries and to improve the villager's lot through their own primary effort. In short, the programme aimed at achieving all-round socioeconomic transformation of the rural people.

2.3 COMMUNITY DEVELOPMENT PROGRAMME (CDP) – FOUNDATION FOR EXTENSION PROGRAMMES IN AGRICULTURE

The Community Development Programme is a multipurpose extension programme which includes farm and non-farm sectors of livelihood. It is launched on 2nd October 1952. It achieved tremendous results and benefits in the field of agriculture, rural development, social and economic development.

The Community Development Programme (CDP) made a significant impact in the rural people for their own development in all aspects of their day to day life. It was so successful and purposeful that United Nations defined the Community Development Programme as "the process by which the efforts of the people themselves are united with those of governmental authorities to improve the economic, social and

cultural conditions of communities, to integrate these communities into the life of the nation and to enable them to contribute fully to national programmes".

The CDP which emphasized development in all spheres of people's life slowly directed towards specific objectives attainment as over the years it was felt necessary.

2.3.1 National Extension Service

Rural development activities under Government sponsorship was started with the introduction of CDP. Within a few months of the launching of these pilot projects, it was prominently experienced that the people were ready even keen, for the programme. The people in all the project areas responded enthusiastically and indeed much beyond the expectations o0f the Government and the sponsors of the programme. This fact emphasized the need for a rapid extension of the programme to other parts of the country. But the country's resources were not sufficient to sustain a comprehensive plan of the same magnitude as contemplated in the first 355 projects. The Government therefore decided to launch alongside the community development programme another programme which was somewhat less intensive in character, called the National Extension Service programme. The National Extension Service programme was formulated in April 1953 and it was inaugurated one year after the 55 community projects that is, on October 2, 1953.

It was a major development in the sphere of rural reconstruction in India. Since the basic idea underlying both the community development and National Extension Service programme was the same, the two were integrated under one agency at the Centre as well as in the states. Both the programmes were complementary and interwoven and ran concurrently. The idea behind the National Extension Service Programme was to cover the entire country within a period of about 10 years, that is to say, by 1960-61.

The inter-relation between the community development programme and National Extension Service can be explained as below:

It is necessary to explain the inter-relation between the community development programme and the National Extension service. The movements have identical aims. The National Extension Service is a permanent organization and will cover the whole country. It provides the basic organization, official, non-official and a minimum financial provision for development. Further funds will be found from the central Government and the State's own allotments under different heads. National Extension Service blocks in which successful results have been achieved with the maximum popular co-operation are selected for intensive development for a period of three years. This intensive development will depend on the available financial resources and local support and local support and enthusiasm.

The National Extension Service and the community development programmes have uniform unit of operation which is called a development block. It represents on an average 100 villages, with a population of 60,000 to 70,000 persons spread over an area of 150 to170 square miles. But the N.E.S. blocks are not developed with the same intensity as areas under the community development blocks. Out of the areas developed as National Extension Service Blocks, selection is made periodically for intensive development work under the community development programme and the blocks which are selected are C.D. blocks. Only those blocks are selected which in their working showed good results and where people's participation had been in abundance.

Organizational Set-up for Community Development Extension Service: The organisational set-up for Community Development Programme runs from the national level through state, district and block levels to the village level and there are three main constituents of this new set-up.

(a) The direct-line staff such as State Development Commissioner, B.D.O and Village Level Worker.

(b) The auxiliary or specialist staff, such as different heads of technical departments at the state and district levels and extension officers at the block level.

(c) Panchayati Raj System - The Zila Parishads, Block Samitis and Village Panchayats.

(A) National Level: At the National level programme, the policies are formulated by the National Development Council presided over by the Prime Minister of India. Membership of the Council consists of the Central ministers of the concerned ministers, chief ministers of all states, and members of the Planning Commission. The Planning Commission provides guidance for Plan formulation and gives it approval to annual and Five-Year Plans of the states as well as of the Centre. The Ministry of Agriculture and Irrigation is responsible for giving national guidance, policy formulation and technical assistance in regard to Agriculture Extension and Community Development (now Rural Development Programmes). In the Agriculture department, the Agricultural Commissioner, Government of India, assisted by a number of assistant commissioners and directors, with the supporting staff, is in charge of all agricultural development programmes at the national level. Within this Department, special mention may be made of the Directorate of Extension Training responsible for the training of Extension officers, VLWs, instructors of Village-Level Workers Training Centres and others and the Directorate of Farm Information which is concerned with the dissemination of new agricultural technology and innovations through various media.

(B) State Level: At state level also, there is usually a State Development Committee presided over by the Chief Minister of the state with the other concerned ministers as its members. This Committee is responsible for the state's plan and programmes and for fixing the targets for regions and districts. Besides this committee, there are usually a number of other advisory or technical committees.

As regards the actual administrative functioning, the State Development Commissioner is the top-level executive responsible for directing, co-ordinating and providing overall guidance for development programmes and maintaining a two-way

channel of communication between the State governments and the Central government. He also co-ordinates the activities of different development departments, such as agriculture, animal husbandry, co-operation, panchayati raj, health, education, irrigation, power and electricity. The heads of these technical departments are responsible for planning and implementing the technical programmes and for providing the necessary technical guidance, manpower and support.

(C) District Level: At the district level also, there is usually a District Development or District Planning Committee presided over by the District Collector or Deputy Commissioner. The other members of this committee are the heads of the departments in the district, chairman and vice-chairman of the district boards, representatives of voluntary organizations, local bodies and members of parliament and state legislatures.

In the states, where the Panchayati Raj is operating, the Zila Parishads are responsible for planning, co-ordinating and consolidating the development programme in the district.

The District collector is the key official who co-ordinates the activities of all development departments at the district level. The district-level technical heads of agriculture, animal husbandry, co-operation, panchayats, public health, irrigation, education and rural industries are responsible for planning and implementing the development programmes relating to their departments. Administratively, they are responsible to the district collector on one hand and to their state heads of development departments on the other.

(D) Block Level: A district is subdivided into a number of community development programmes. The Block development officer is the head of the block team, and coordinates all the activities of the development departments at the block level. He is assisted by eight extension officers from different fields, namely agriculture, animal

husbandry, health, co-operation, panchayats, engineering, social education and rural industry.

At the non-official level in the States, where the Panchayati Raj has been implemented, the Panchayat Samiti (also called the Block), this Samiti) has the statutory powers for formulating and executing development programmes. The Samiti is assisted by the B.D.O and the extension officers. Wherever the Panchayati Raj is not working, there are block development advisory committees.

(E) Village Level: At the village level, the multi-purpose village-level worker is the main extension staff. He is the last extension functionary in the administrative hierarchy and is the main contact person. He is responsible for all developmental work at the village level, and forms a connecting link between the various technical departments and the rural people. Usually, in a normal community development block, there are 10 village level workers. Their number has been double in the Intensive Agricultural Development Programme (IADP) blocks.

On the non-official side, usually there is a Panchayat in every village or for a cluster of villages, and is responsible for planning and implementing the community development programmes and ensuring people's participation in them.

2.3.2 Stage IV - Intensive Agricultural Development Era (1960-onwards)

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.

The sole objectives of these programs were economic upliftment of the people of the country and taking them out from poverty line. All the programmes focused towards agricultural development by which large majority of rural people, who are dependant solely on agriculture were aimed for their socio economic development. The programmes initiated over the years till date are:

- Intensive Agricultural District Programme (IADP)

- Intensive Agricultural Area Programme (IAAP)
- High Yield Variety Programme (HYVP)
- Small Farmers Development Agency (SFDA) and Marginal Farmers and Agricultural Labourers (MFAL)
- Drought Prone Area Programme (DPAP)
- Command Area Development Programme (CADP)
- Integrated Rural Development Programme (IRDP)
- Training and Visit (T&V) System of Agricultural Extension
- The Intensive Cattle Development Project (ICDP)
- Training of Rural Youth for Self-Employment (TRYSEM)
- Development of Women and Children in Rural Areas (DWCRA)
- National Agricultural Extension Project (NAEP)
- Technology Mission on Oilseeds (TMO)
- Jawahar Rozgar Yojana
- MGNREGA
- National Horticultural Mission
- RKVY(Rashtriya Krishi Vikas Yojana)
- National Agricultural Innovation Project (NAIP)

All these programmes, though not attempted towards development of agricultural extension but definitely production and productivity of their farming operations and other rural enterprise 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.

2.4 EXTENSION STRATEGY FOR AGRICULTURAL DEVELOPMENT

Agriculture extension plays a pivotal role in rural and agriculture development by combining farm and non-farm sources of livelihood.

Seventy five percent 75% of world poor (The World Bank in its 2000-2001 Report, estimates that about people who have to survive with less than one dollar a day) live in families of farmers and farm labourers. This implies that any programme aiming at poverty alleviation has to give considerable attention to agricultural development. And agricultural extension will be an important and significant element in such an agricultural and rural development programme.

The definite objectives of Agricultural Extension in the present era will be:

- Helping farmers to increase their standards of living by increasing Farm income & yields of crops and animals by combining farm and non-farm sources of income
- For Sustainable Rural livelihood and developing the farms, farmers need not only financial capital but also need social, physical, natural, and a healthy Human capital (Sustainable rural livelihood framework of DFID) and extension system has to educate farmers to access these.

Hence, in global competitiveness of high quality, low cost agricultural products in WTO regime, Indian farmers have to prepare themselves to meet the challenges. To make it possible, agricultural scientists, extension personnel and agricultural administrators, backed by Government must work in tandem and the Agricultural research in ICAR Institutes and State Agricultural Universities also must change its focus and direction in meeting the challenges of the WTO regime to help, provide farmers the competitive edge over other farmers of the globe.

Agricultural Extension & Need of Reorienting Its Strategy

Agricultural Extension is central in formulating and disseminating knowledge and in teaching farmers to be competent decision makers. Therefore, extension plays an important and significant role in most agricultural development projects.

Agriculture Extension has both public and private players and all stake holders put together must work on the PPPP (public, private, panchayat, partnership mode)

Challenges for Extension in the New Millennium

As we move into the new millennium, it will be increasingly necessary and definitely feasible to take a holistic approach to organize positive change in rural areas, helping farmer towards sustainable increasing productivity - particularly in the small - mixed farming systems in rainfed areas, in upland areas and in other places, which have been neglected. It also demands measuring success in terms of the **consumption** of rural people as well as their **production.** And that, in turn, will require agricultural extension systems which help farm men and women organize themselves in ways which empower them - to lead agricultural extension and to exert enough power and influence over agricultural research system so that they generate useful practical information which fits the needs and interests of those farming people.

Generally, extension has to prepare itself to face six challenges in the new millennium. They are:

1. Control, accountability and sustainability in agriculture
2. Developing a comprehensive Agricultural Extension Policy
3. Addressing the Educational and Technological Needs of Target Clientele
4. Farm Women and Women Extensionists
5. Improving Communication Support in Extension through ICT
6. Strengthening Extension Management

2.5 AGRICULTURAL DEVELOPMENT AND EXTENSION PROGRAMMES

So far, extension objectives 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 ensuring input supply and information services, training of farmers and extension personnel for knowledge and skill up gradation to cope up with the technological advancement, marketing and management.

Emerging Priorities in Extension in the New Millennium

In the present context of liberalized economy and globalization of agriculture time has come now for agricultural extension to cope up with the changing scenario with its new strategy and approach to reach farmers not only with basket of technological options, but also with information of new market opportunities and gain, more profit and sustainability of income. For the purpose, extension is to be redefined, redesigned and equipped with several solutions to the problems of different groups of farmers, with varied dimensions of land holdings, farmer's situations and income. The priorities in these are:

1. Technological options and development in agricultural production process- the basket approach.
2. Location specific and need-based extension strategies and approaches.
3. Participatory extension for technology development and dissemination.
4. Linkages and coordination among concerned development departments and organizations.(PPPP mode)
5. Use of new communication channels and media support in extension. (ICT)
6. Human resources development and management in agricultural extension.
7. The cost sharing of extension services and privatization of extension.
8. Institutional innovations to build effective extension strategy.

Keeping these cardinal principles in view, following programmes were launched by Government of India to help farmers for their socio-economic development through improving agricultural production and productivity. Some of them are:

Intensive Agricultural District Programme (IADP)

With a focus 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 more districts 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 Program (IAAP)

To meet the demand of food for the vast population of the country, it was decided that at least 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 increased the food production to some extent. But in the later period, when yield production was stabilized, it could not meet the demand of the need of further food production and this experience directed the need of HYVP.

The HYVP came into being 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 program 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 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.

The basic objective of DPAP was to reduce the severity of the impact of the drought and stabilizing the income of the people, particularly, the weaker sections of the society together with restoration of ecological balance. Special emphases of DPAP were:

1. Development and management of irrigation resources

2. Soil moisture conservation and aforestation
3. Restructuring of cropping pattern and pasture development
4. Changes in agronomic practices
5. Livestock development of small farmers, marginal farmers and agricultural labourers through special action plan.

The DPAP programme was in operation in 74 districts of 13 states of the country. This programme exceeded target in the areas of soil and moisture conservation, forestry and pasture development, distribution of milch animals, organization of sheep cooperative societies and in most of these areas, the programme exceeded the target levels. However, the DPAP had also some limitations such as beneficiary and area development programme oriented approaches could not solve the problems of poverty and unemployment to a greater extent.

Command Area Development Authority (CADA)

The Irrigation Commission observed that the utilization of irrigation potentialities was slow and not efficient which resulted in increase of drought prone areas. The National Commission on Agriculture too subscribed the same view that every old irrigation project should be upgraded so that existing irrigated areas can be provided with required irrigation and plan should be made to cover more areas under its operation. Based on these recommendations, 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 coordination among the different departments like irrigation, soil conservation, agricultural extension and co-operation & credit agencies.

The basic 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.

Though this programme helped in achieving some objectives of availability of irrigation water through dam / canals, 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 were deprived of it and gap widened between the two areas and its people.

The CADA helped in achieving increase of production by providing irrigation water and also helped the big farmers to invest more and also get the high returns. And it proved that irrigation and its proper management if provided the productivity of the crops can be increased in no time. This programme had some problems like proliferation of projects, escalation of costs, difficulties of land acquisition and non-availability of potential & actual cultivable command area.

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 with a view to achieving acceleration of 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.

In India this system was been introduced 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 and increasing incomes and of providing appropriate support for agricultural development. The important features of this system include

professionalism, single line of command, concentration of effort, time bound work, field and farmer orientation, regular and continuous training and close linkages with research.

T & V system resulted in creation of a dynamic link between farmers, professional extension workers, and researchers. The impact of T&V system was readily apparent over a wide range of agro-ecological conditions in farmers' fields, whether irrigated or rainfed.

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 well-developed research systems 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.

2.6 VARIOUS CLIENT FOCUSSED 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.

SFDA was first introduced in 168 district level agencies covering 1818 blocks. Later MFAL was combined to make this as a composite SF/MFAL blocks.

The major achievements this programme brought were that all small farmers, marginal farmers and agricultural labourers came in one umbrella to help them, identify their problems and solve them with the support from Government. It also helped agricultural labourers to get their minimum wages from the land owners where they used to put their labour. The marginal and small farmers both got several subsidies from various agencies, identified by SFDA and MFAL for their cultivation practices, and as a result to some extent they could improve their economic conditions.

However, these programmes could not achieve fully the target as it did not cover whole area throughout the country and also it covered only one or two aspects of rural life and sections of rural people in selected blocks/districts. Local level planning and monitoring were absent in these programmes.

Integrated Rural Development Programme

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.

IRDP included all the sectors in its operation to help support people in the rural area to attend their economic up-liftment. The sectors included agriculture, animal husbandry, fisheries, horticulture, forestry, industry, marketing and service sectors. At the beginning, this programme brought tremendous impact and improved economic conditions. But at the later part of the programme, improper selection of beneficiaries had resulted is deprival of benefits to genuine beneficiaries.

Because of the very nature of this problem and its huge machinery for implementation of the same in almost all blocks of the country, proper follow up was almost absent. Particularly after sanction of loans or distribution of some inputs to the beneficiaries for their economic development, no one kept track with the beneficiaries. The bench mark survey for selection of beneficiaries were not done as per plan and also there were lack of coordination among the development departments and people at the block level and in the process, participation from people were very much less in the programme. The problem also came up because of rigid approach of bureaucracy from the block and district level. However, IRDP brought the awareness among the rural people for their economic development and expected roles government should play for the purpose.

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 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). The package included:

1. Cattle breeding
2. Castration of scrub bulls
3. Veterinary aid and disease control
4. Registration of milk recording

5. Introduction of high yielding Milch cattle
6. Subsidies and incentives for milk production
7. Feed and fodder development including demonstration, distribution of fodder seeds, silage making and popularization of chaff cutters and
8. Dairy extension.

The programme was launched in the milk shed area of major dairy plants to ensure the increased and steady flow of milk to these plants. There is no doubt that ICDP did help in increasing milk production in Milch animals in the country to a great extent.

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 side 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 the sole objective of improving the conditions of women and children in the rural areas. The rationale 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.

The objective of DWCRA was to provide income generating activities to women and also to provide an organizational support in terms of a receiving system for the assisted women so that they could become effective recipients of goods and services available in that area. The unique feature of DWCRA was to help the women in a group instead of helping individually. Therefore, the group approach helped every individual of the group to think and perform better as impact of the group matters. This was very effective and many of the rural women got benefit out of this programme.

Though several programmes listed above were aimed at improving socio-economic conditions of rural people through agriculture and its allied areas, many of the limitations cropped up during the implementation of these programmes. The limitations were effectively related to organizational, structural and functional constraints which were very much identified during the long continuance of T&V system of agricultural extension and other related development programmes.

Technology Mission on Oilseeds (TMO)

Technology Mission was the special assignment of a task to a group of people to fulfil a technological programme within a given period of time. It was generally taken up at the national level to remove a persistent problem pervading the life of the people, through time bound, result-oriented, multi-disciplinary, highly intensive programmes. The organizations and agencies involved in the programme were given specific responsibilities and the progress of work was closely monitored at the highest level. In implementing the programme, not only positive aspects were emphasized, but the retarding factors were also identified and steps were taken to remove them as quickly as possible. The programmes operated with liberal financial assistance and their

implementation did not suffer at all due to non-availability of funds. India took this task as a challenge and achieved to a great deal in oilseeds production in the country.

A major deficient area was oilseeds production for which the Technology Mission on Oilseeds was initiated in May 1986. The main purpose was to make the country self-sufficient in edible and non-edible oils of plant origin and to minimize their imports. This was to be achieved through an integrated approach involving different developmental, scientific, banking, marketing and processing agencies. The Technology Mission on Oilseeds had the following strategy:

i. Improvements in crop technology
ii. Support to the farmers to apply improved production technology
iii. Improved post-harvest technology; and
iv. Support to industry for applying post-harvest technology

A comprehensive plan was prepared to increase the irrigated area under oilseeds, by replacing less remunerative crops by oilseeds and by adopting improved technologies, and better dry farming methods and practices. The extension methods include block demonstrations, training of farmers, subject matter specialists and extension agents; assured input supply and technology packages; field days, farmers' conventions; and communication through radio and television. Realizing the importance of a strong support system to farmers through transfer of technology, the Government of India initiated National Oilseeds Development Project (NODP) for sustained vegetable oil production.

Jawahar Rozgar Yojana

Jawahar Rozgar Yojana to provide employment to the rural poor was initiated in 1989. National Rural Employment Programme (NREP) and 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 direct.

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 will provide fuller employment opportunities to at least one member of each family living below the poverty line who sought unskilled employment (Department of Rural Development, 1989).

MGNREGA

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is an Indian job guarantee scheme, enacted by legislation on August 25, 2005. The scheme provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage of ₹120 per day in 2009 prices. The Central government outlay for scheme is ₹40,000 crore in FY 2010–11.

This act was introduced with an aim of improving the purchasing power of the rural people, primarily semi or un-skilled work to people living in rural India, whether or not they are below the poverty line. Around one-third of the stipulated work force is women. The law was initially called the National Rural Employment Guarantee Act (NREGA) but was renamed on 2 October 2009.

In 2011, the programme was widely criticised as no more effective than other poverty reduction programs in India. Despite its best intentions, MGNREGA is beset with controversy about corrupt officials, deficit financing as the source of funds, poor quality of infrastructure built under this program, and unintended destructive effect on poverty.

National Horticultural Mission

National Horticulture Mission is an Indian horticulture Scheme promoted by Government of India. It was launched under the 10th five-year plan in 2005-06 to develop horticulture to the maximum potential available in the State and to augment

production of all horticultural products (Fruits, Vegetables, Flowers, Plantation crops, Spices, Medicinal Aromatic plants) in the state.

The objectives are:

1. To provide holistic growth of the horticulture sector through an area based regionally differentiated strategies
2. To enhance horticulture production, improve nutritional security and income support to farm households;
3. To establish convergence and synergy among multiple on-going and planned programs for horticulture development;
4. To promote, develop and disseminate technologies, through a seamless blend of traditional wisdom and modern scientific knowledge;
5. To create opportunities for employment generation for skilled and unskilled persons, especially unemployed youth;

RKVY (Rashtriya Krishi Vikas Yojana)

Rashtriya Krishi Vikas Yojana or National Agriculture Development programme is a State Plan Scheme of Additional Central Assistance launched in August 2007 as a part of the 11th Five Year Plan by the Government of India. Launched under the aegis of the National Development Council, it seeks to achieve 4% annual growth in agriculture through development of Agriculture and its allied sectors (as defined by the Planning Commission (India)) during the period under the 11th Five Year Plan (2007–11).

The scheme is essentially a State Plan Scheme that seeks to provide the States and Territories of India with the autonomy to draw up plans for increased public investment in Agriculture by incorporating information on local requirements, geographical/ climatic conditions, available natural resources/ technology and cropping patterns in their districts so as to significantly increase the productivity of Agriculture and its allied sectors and eventually maximize the returns of farmers in agriculture and its allied sectors.

National Agricultural Innovation Project (NAIP)

The Government of India has launched the National Agricultural Innovation project with a credit support of the World Bank. The ICAR is operating the Project. The overall objective of the project is to facilitate accelerated and sustainable transformation of Indian agriculture for rural poverty alleviation and income generation by the application of agricultural innovations through collaboration among public research organizations, farmers' groups, NGOs, the private sector and the civil societies and other stakeholders. The National Agricultural Innovation Project contributes to the sustainable transformation of Indian agricultural sector to more of a market orientation to relieve poverty and improve income. The specific aim is to accelerate collaboration among public research organizations, farmers, the private sector and stakeholders in using agricultural innovations. The project has four objectives.

1. Strengthen the Indian Council of Agricultural Research (ICAR) as the catalysing agent for managing change in the Indian National Agricultural Research System (NARS) by focusing on: Information, communication and dissemination system; Business planning and development; Learning and capacity building; Policy and gender analysis and visioning; Remodelling financial management and procurement systems; and Project implementation.
2. Fund research on production-to-consumption systems.
3. Fund research on sustainable rural livelihood security.
4. Support basic and strategic research in the frontier areas of agricultural science features

The project will have a strong and transparent governance strategy for efficient working. Institutional and implementation arrangement will be fully streamlined to follow modern financial management, procurement system, knowledge management, and a results framework and monitoring which will ensure continuous progress and achieving the expected output. Systematic economic and financial analysis will be

pursued along with close monitoring of environmental and social safe guards. Another major component of the project is a strong institutional learning and capacity building plan for self-renewal of National Agricultural Innovation System. The plan includes comprehensive training need assessment, harnessing modern ICT in knowledge and education dissemination management for agriculture, capacity building to deal with globalize agricultural market and economy, capacity building for visioning and foresight etc.

First line extension and Regular Extension?

Today the first line extension is an outreach extension education programme done by the ICAR institutes and State Agricultural universities to the line departments in order to orient them with new technologies and processes emerging in the field. While regular Extension refers to the extension activities and programmes done by the line departments to farmers directly.

Agricultural Universities (Linking Teaching, Research and Extension) in India

While the various administrative set-ups, were tried and adopted, another notable innovation for improving the standard and quality of agricultural education, research and field extension (extension education), was introduced in India in the form of agricultural universities in various states. The first such university established in 1960 was the Govind Ballabh Pant University of Agricultural Science and Technology at Pantnagar (Uttar Pradesh). Subsequently, in each State one (in some States more than one) agricultural university was established and at present there are 67 Agricultural universities (64 SAUs and 3 CAUs, December 2019) functioning performing the integrated task of teaching, research and extension in India. For extension education programmes and activities, each of these Universities has a directorate of extension education, headed by a director who is supported by a team of subject matter specialists from all the major disciplines, such as agronomy, animal husbandry, soil science, entomology, plant pathology, horticulture, agricultural economics, agricultural engineering and extension education. The directorate of extension education of the

university is primarily responsible for keeping the extension personnel of the States department of agriculture up to date with the new agricultural technology, communication of new agricultural technology to farmers, the training to farmers and extension personnel bringing out suitable extension literature for use by the farmers and extension workers and carrying out extension-education programme and developmental activities in selected areas.

2.7 EXTENSION PROGRAMMES IN OTHER COUNTRIES

Bangladesh

The Comilla project in Bangladesh which aroused the interest of the rural development workers all over the world could be considered a giant leap forward for the extension work in that country. In early 1960s (the then East Pakistan), a National Academy was started at Comilla to train government officials in rural development. Particularly, Kotwali Police Station of the District was the experimental laboratory for developing and testing rural development methods focusing agriculture development. By trial and error, the Academy developed a comprehensive approach which features a particular interest to extension agents that facilitated an agreement between the local people and the Academy to carry out some activities like – organizing themselves into village cooperatives; and it became the principal agency for non-formal education which is the theme of agricultural extension.

Sri Lanka

Sri Lankan agriculture is characterized by a substantial diversity in farming systems. The majority of farmers operate small farms at subsistence levels, while the others produce crops/livestock on a commercial scale. The extension approach centres on collective action by many departments as against a single department and emphasizes use of group extension methods. The basic concepts underlying the above approach are the farmer centred, whole farm, bottom - up participatory planning in the preparation of divisional, district and provincial programmes based on farmer needs

identified through problem census, problem analysis and problem solving processes. It was envisaged to establish Farmer Reference Groups (FRGs) with common interests and similar resource endowments. The FRGs were to form the most important link between the extension officer and the farming community.

Indonesia

The Integrated Pest Management (IPM) programme was launched in 1989 as a conscious decision by the Indonesian Government to come to terms with environmental degradation. It is said to be the first large scale attempt systematically to introduce more sustainable agricultural practices as a national, public sector effort. The IPM extension approach is based on the Farmer Field Schools (FFS) which are non-formal in character and last for the main part of the rice growing season. There is a training field divided into one section following the IPM recommendations and another field following the more conventional agricultural extension service's advice. Lecturing is hardly used, instead trainees are encouraged to observe the fields and question the findings in an agro-ecosystem analysis. This is presented to the whole field school group and then discussed. Active members of groups are encouraged to train other groups, in farmer-to-farmer dissemination, which is seen as an important strategy for mass replication.

The programme has already inspired the World Bank to base the new National Extension Project on the IPM farmer field school model. Within the programme, there is work going on to generate funds from local governments. So far, the programme has reached relatively elitist farmers and ways of reaching the mass of Indonesia's rice farmers need attention.

The Philippines

Under the Local Government Code of 1991, the Congress of The Philippines decentralized authority to local Governments to manage and supervise `basic services', including agricultural extension which had until then been the responsibility of the Ministry of Agriculture. Resources and assets were transferred as well as powers to

generate resources locally for funding development projects. This required a total reorganization of the extension system. The extension methods used range from individual to group extension, from mass to folk media, and IT (information technology). In more recent programmes, the Key Production Area (KPA) development approach is used which focuses on priority areas best suited for specific commodities which are based on agro-climatic suitability and the availability of markets for the products. By this approach, efficient utilization of scarce resources is ensured and the farmers' investments paid off. The empowerment of farmers and fisher folk plays a central role in the approach and agrarian reform will give farmers access to land and water resources.

Building of the Philippine tradition `schools on the air' a pilot project was established in 1992 with the Government and The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development. After having established the outside information need of local farmers (by participatory methods), short-term training programmes are broadcast on the air, accompanied by printed materials or videos. Community members are also being trained to prepare radio scripts.

China

Along with china's rural reform, the rural economy and social environment have been changed considerably. These have been summarized as follows:

- The managerial unit changed from commune and brigade to the individual household. As a result of these organizational changes, every peasant household runs a small farm, which on an average is 0.5 ha of farmland;
- Traditional agriculture switched to modern and commercialized agriculture;
- The farming system has been changed, many young farmers and many experienced farmers have gone to other sectors;
- There has been an increase in farmers' requests for technology, managerial and marketing knowledge; and

- The market approach has been increasingly embraced in agricultural production.

The first national extension programme 'Harvest Programme' was started in 1987.

This programme contributed greatly to the rural development and farmers' income in China, and is still in the process of development. Beijing Agricultural University established an extension department in 1994. Several centres were established to use new ideas to conduct extension work. Besides, the Scientific Technology Committee of the Ministry of Agriculture is working for improving the cooperation among agricultural research, agricultural education and agricultural extension. Thus, the Chinese Government is trying to do two things at the same time:

- To establish a new extension system as soon as possible at all levels from State for farmers; and
- To make the extension system function efficiently.

The challenge now facing the Chinese extension system is that there is a lack of money to support the system that has been set up. The overall demand for technology innovation and diffusion now appears to be far greater than when the collective system of rural production was intact. While demand has risen, the practical difficulties of meeting this demand have also multiplied, as the system has to serve millions of production units, as against limited numbers under the previous collective system of rural production was intact. The situation has worsened because of lack of funds from the Government. It seems that, the Government will gradually reduce financial support to the extension organization and farmers will have to pay some money for the service they receive.

In this context, Chinese Government is envisaging some changes for the extension system in China. These are –

1. It is necessary to shift agricultural extension from the mandatory approach to other (participatory, for example) approaches.
2. The extension system needs to be strengthened, especially at the lower levels, not only more staff, but also more training is needed.

3. The Government should have a long-term planning approach and design a consistent policy
4. Farmers' organizations need to be developed.

Australia

In 1990, a community based LANDCARE programme was launched which is s a grass-root initiative with Government support. For implementation of soil and water conservation programmes, community based Land care groups will be crucial as they will provide points of convergence for local action.

In Australia, the Land care movement provides a framework for community action to effect a substantial impact in terms of widespread reversal of land degradation, protection of native vegetation and improvements in the economic and social well-being of rural Australia. It has been extremely effective in mobilizing community participation growth and spread in all States and territories in Australia. The community participation in this movement has been able to surpass the policy, institutional and legislative responses to the pursuit of ecological sustainability.

The United States of America

The United States of America is noted for its University-based extension. Within the USA, State Universities have traditionally cooperated with local countries and the USDA (United States Department of Agriculture) in doing extension, besides education and research. The extension goals of the Land-Grant Colleges have shifted from practical education to technology transfer and, more recently, to a much broader concept of human resource development.

With the emergence of strong private and other public sector research and development organizations and dramatic changes within the agricultural production sector, Cooperative Extension Service is facing new challenges with regard to coordination and cooperation. Apart from its traditional roles, networking will become

a primary role. In this model, industry as well as intermediate and end-users of knowledge become part of the extension system.

While the Cooperative Extension Service of the United States is still the only system in which the main extension function remains within the University, some developing countries, notably India, have integrated educational institutions into practical extension work. The main contribution of educational institutions to extension will be the training of qualified personnel. Some Indian agricultural universities have come close to the US model without taking over the full load of extension work. In the field, they have taken over functions which are only inadequately performed by the Ministry, thus supporting general extension work by the States. Remarkable features are direct assessment of clients' needs, user-oriented research, quality training for State personnel, and a strong linkage between academic education and field practice.

2.8 CHANGE AGENT / EXTENSION AGENT

The whole extension process is dependent upon the Extension Agent/Worker, who is the critical element in all extension activities. The effectiveness of the extension agent can often determine the success or failure of an extension programme. The extension agent has to work with people in a variety of different ways. It is often an intimate relationship and one which demands much tact and resourcefulness. The extension agent inevitably works with people whose circumstances are different from his own. He is an educated, trained professional working with farmers, many of whom have little formal education and lead a way of life which may be quite different from his.

The extension agent is a change agent: he intervenes to bring about change in order to help improve the lives of the farmers and their families. The basic role of the agent in bringing change into a rural area and what areas of knowledge and personal skills.

1. An extension agent tries to arouse people to recognize and take an interest in their problems
2. An extension agent is a person whose primary role is to achieve a transformation of attitudes, behavior and social organization.
3. Extension agents are multi-purpose agents serving as links between government and people.
4. An extension agent is a person who sets in motion a process of change after realizing that certain changes are necessary for the rural society.
5. An extension agent is an activist whose main role is to help people form their own organizations in order to be able to tackle their problems.
6. An extension agent is a professional who influences the innovation/decision-making process in a direction deemed desirable by the change agency.

In the role of educator, facilitator or catalyst, which the extension agent may need to perform in the course of his duties, the agent is associated less with the knowledge/communication aspect and more with the farmers' personal development.

The extension agent is less concerned with specific programmes or targets and more with helping the farmers to gain confidence, to organize them and to begin to get involved in extension activities.

The extension agent's role is essentially to help support and actively encourage farmers to develop their own initiatives and to begin to tackle their own problems.

Teacher	Facilitator	Organizer	Arbitrator
Educator	Broker	Administrator	Advocate

Leader	Consultant	Enabler	Catalyst
Communicator	Intermediary	Activist	Friend
Motivator	Listener	Provider	Stimulator

The above list shows us the diversity of roles an agent can assume, but he must always be aware that the most important thing is to study the situation, analyse the problems and adopt a position which is relevant to solving those particular problems. Thought must be given to this, and an extension agent must never simply plunge into a situation without thinking carefully how he may best help to change it.

Extension Agents are:

- Link between knowledge & development
- Link between research & development
- Link between markets & farmers
- Link between farming community & policy makers

KNOWLEDGE AND PERSONAL SKILLS OF EXTENSION AGENT

An extension agent is the one who has adequate knowledge of technical aspects and working knowledge of the main elements of the agricultural system in which he is working. He should have the knowledge of *rural life*, local traditions, practices, culture and values. He should be familiar with the main legislation of government or other institutional policies which affect the rural areas, development programmes, credit programmes, and bureaucratic and administrative procedures.

The Extension Agent should have skills like Organization and planning, Communication, Analysis and diagnosis, Leadership and Initiative. And personal qualities like Commitment to extension work, Reliability, both in terms of carrying out extension work and also in relations with farmers. He must have the humility in his work with the farmers. The change agent must be sensitive to the wishes and feelings of the farmers and work with them in a way that respects them as people who have

knowledge and ideas to contribute. He should be confidence in his own abilities and determination to achieve something.

Public speaking is a skill. Speaking in public is a very useful and effective form of communication, if done competently. A public speech gives the extension agent an opportunity to demonstrate his enthusiasm and technical knowledge.

Use of local leaders, a good extension agent will always try to enlist the support of local farmers in his extension work.

WHAT AN EXTENSION AGENT SHOULD DO?

The first and the foremost activity of any Extension Worker is to Know and understand his/her job chart without any ambiguity, understand the roles to be performed and responsibilities to be taken up.

The Extension Worker to perform his/her job efficiently, he/she should be equipped well, with all the related information with regard to farmers and farming in the jurisdiction. To do so, the extension worker should first make 2-3 informal visits to the villages under his jurisdiction. Slowly, discuss with the villagers (who ever come across) and try to develop rapport with them, by introducing yourself as an extension worker. Once a good rapport is developed with the villagers, use PRA tools to understand the village with respect to village dynamics, social strata, crops grown, cropping pattern adopted, animals that they keep, problems faced etc. To be sound knowledgeable and informative extension worker should collect information with regard to the following at the earliest and prepare a data base of all the farmers in the jurisdiction:

- Land Utilization particulars related to his/her jurisdiction,
- Nature & Type of soils in his/her jurisdiction,
- Area under irrigation or irrigated,

- Sources of irrigation like tanks, Kuntas, Major/Minor Irrigation projects with ayacuts, Bore wells No. of oil engines, electric motors etc.,
- Area under rain-fed agriculture,
- Crops wise, season wise area under cultivation, Productivity & Production Particulars,
- Crop – wise for the last (2) years, Rainfall data, month-wise for the last (2) years,
- Plant Protection Equipment/Implements/Agril. Machinery including Tractors available with farmers,
- SC/ST farmers – village wise with no. of holding and areas.
- No. of holding of small & marginal farmers, with area in hectares.
- List of Input dealers in his/her jurisdiction.
- Area under problematic soils in the jurisdiction. Information with regard to the saline – alkaline soils/sodic soils/low lying areas or water stagnating areas/mineral deposits areas etc.,

Soil Testing Campaign:

1. Educate the farmer to understand the importance and advantages of soil testing,
2. Collect Soil samples by involving the farmer,
3. Be prompt in communicating analytical results,
4. Recommend the fertilizer (macro/micro nutrients) doses based on the soil test results in consultation with the ADA/ AO or KVK Scientist.

This activity should be carried out during the months from March – May.

- Identify progressive farmers in each village for adoption of latest technologies developed through demonstrations and mini kits.
- Critically analyze the field problems, technical gaps/ production constraints under the guidance of block agriculture officer and guide the farmers accordingly to increase the production and productivity.

- Give adequate publicity about the departmental schemes. Be thorough with the guidelines of each scheme for implementation. Advance identification of areas / farmers for implementation of different schemes.
- Assist Block Agriculture Officer in organizing field visits, farmers meetings, field days and press meets as per need.
- Maintenance of records /registers with reference to all the schemes.
- The Documentation of programs being implemented.
- Conduct of Crop Cutting experiment in time allotted under regular & National Agriculture Insurance Scheme (NAIS), Maintains good rapport with public representatives. Keep them informed about all the schemes, and also during pest out breaks etc.

WHAT PROCESS SKILLS AND COMPETENCIES AN EXTENSION WORKER NEED?

1. Conduct needs assessments
2. Prioritize needs and problems
3. Identify stakeholders and engage them in extension programs
4. Conduct community forums
5. Conduct brainstorming exercises
6. Identify market opportunities
7. Design services based on gender analysis
8. Develop a work plan
9. Develop a grant proposal Program implementation
10. Conduct farm and home visits
11. Conduct method and results demonstrations
12. Organize farmer field schools and promote Farm Schools
13. Organize field days
14. Establish a model village

15. Conduct meetings effectively
16. Manage conflict
17. Manage time
18. Manage groups and teamwork
19. Understand group dynamics and/or facilitate groups
20. Write field reports Program evaluation
21. Conduct surveys and personal interviews
22. Conduct focus group discussions
23. Write extension evaluation reports and share results and impacts.
24. Make effective presentations
25. Communicate effectively with community leaders
26. Organize extension campaigns
27. Write for newspapers or mass media
28. Make good use of information and communication technologies (ICTs)/access and use web-based resources.

2.9 LET'S SUM UP

The chapter clearly presents the reader to know the genesis of agricultural extension and its programme activities, obtain idea on various development programmes in agriculture and allied areas to help farmers. It exposes the reader on different facets of Community Development Programmes. The chapter gives the reader an insight to understand the extension strategy for Agricultural Development and specific agriculture extension programs in India and other countries. Finally, the chapter explains, who is a Change Agent and what his role is in the present Extension system. The whole extension process depends upon the extension agent, who is the critical element in all extension activities. The effectiveness of the extension agent can often determine the success or failure of an extension programme.

2.10 CHECK YOUR PROGRESS

1. Why do we need extension in our service system?

2. Describe four paradigms of Agricultural Extension?
3. Explain briefly the pre-independent era attempts for development?
4. What is the organizational set-up for Community Development Extension services at different levels?
5. What is extension strategy for Agricultural Development in India?
6. Describe about the three latest Agricultural Development programmes?

Who is a change Agent and what is his role in the present Extension system?

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UNIT-3

EXTENSION METHODS – INDIVIDUAL, GROUP AND MASS CONTACT

Highlights of the Unit

- Objectives
- Introduction
- Extension through Individual Contact Methods
- Extension through Group Contact Methods
- Extension through Mass Contact Methods
- Let's sum Up
- Check your progress

3.0 OBJECTIVES

After completion of this unit, the learners will be able to:

- Acquaint themselves with various channels of communication to reach target audience.
- Understand individual, group and mass methods and its advantages and disadvantages to use in extension programme activities, and
- Select and decide suitable extension methods, based on the needs and characteristics of target groups.

3.1 INTRODUCTION

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.

In case of Agricultural Extension, the main theme of teaching happens to be the adoption of innovation by individual farmer and subsequent diffusion of the same in

the community. Thus, the innovation or idea of innovation becomes hard core, raw material or the message which needs to be treated in palatable way with the help of the extension teaching methods for effective communication. This is a complex phenomenon for the reason that the adoption of an innovation is an individual decision making process. This process involves the stages of awareness, interest, evaluation, trial and adoption. In each stage of this process, it calls for an effective and thoughtful grouping of effective teaching methods to lead the learners towards the desirable changes.

Added to this, the farmers do not adopt an innovation at the same rate or extent as they get distributed into different categories such as innovators, early adopters, early majority, late majority and laggards. For each group of this clientele, the extension worker has to design and arrive at appropriate combination of teaching methods. Further, the characteristics of innovation itself dictate to certain extent the method that need to be selected for dissemination of agro-information.

Extension workers' main job is to educate rural people. Extension methods are the tools of the extension workers. These tools are called extension-teaching methods. Extension teaching methods may be defined as the devices used to create situations in which communication can take place between the extension worker and learner.

Effectiveness of the teaching methods depends on the combination of the same. Research studies have conclusively shown that the adoption of innovation is positively related to the combinations of different extension teaching methods, at different stages of learning.

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.

3.2 EXTENSION THROUGH INDIVIDUAL CONTACT METHODS

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 individual method are: Farm and home visit, farmers' call, personal letter, adaptive or mini kit trial and farm clinic.

The advantages of the individual method are:

- Helps the extension agent in building rapport.
- Facilitates gaining first-hand knowledge of farm and home.
- Helps in selecting administrators and local leaders.
- Helps in changing an attitude of the people.
- Helps in teaching complex practices, and
- Facilitates transfer of technology effectively.

The limitations of the individual method are:

- This method is time consuming and relatively expensive.
- It has low coverage of audience, and
- Extension agent may develop favouritism or bias towards some persons in the method.

The individual methods are:

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.

Objectives

1. To get acquainted with and gain confidence of farmers and homemakers.
2. To obtain and / or give first-hand information on matters relating to farm and home.
3. To advise and assist in solving specific problems, and teach skills.
4. To arouse interest.

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.

Objectives

1. To get quick solution of problems relating to farm and home.
2. To enable the farmer and homemaker to bring specimens of diseased plants or insects, pests etc. for proper identification of the problem.

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.

Objectives

1. To answer enquiries relating to problems of farm and home.
2. To send information or seek cooperation on important extension activities.

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 practice in which farmer's choice and opinion about the practice are most important.

Objectives

1. To test a new and promising practice under the resources, constraints and abilities of the farmer.

2. To find out the benefits of the new practice in comparison to the existing one.

Farm Clinic: Farm clinic is a facility developed and extended to the farmers for diagnosis and treatment of farm problems and to provide some specialized advice 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.

3.3 EXTENSION THROUGH GROUP CONTACT METHODS

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 farmer's day and study tour or exposure visit.

The advantages of the group method are:

- Enables, extension agent to have face to face contact with a number of people at a time.
- Can reach a select part of the target group.
- Facilitates sharing of knowledge and experience and thereby strengthen learning of the group members.
- Satisfies the basic urge of people for social contacts.
- Motivates people to accept a change due to group influence.
- Less expensive than individual method due to more coverage.

The limitations of the group method are:

- Wide diversity in the interest of the group members may create a difficult learning situation.
- Holding the meeting may be regarded as an objective in itself and
- Vested interests, caste groups and village fractions may hinder free interaction and decision making by the group members.

The group methods are:

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.

Objectives

1. To show the advantages and applicability of a newly recommended practice in farmer's own situation.
2. To motivate groups of people in a community to adopt a new practice by showing its result.

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 skill training, where the emphasis is on effectively carrying out a job, which shall improve upon the result.

Objectives

1. To teach skills and stimulate people to action.
2. To get rid of inefficient or defective practices.

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.

Objectives

1. To prepare a favourable climate for discussion and help in better understanding of the problem by pooling the knowledge and experience of a number of persons.
2. To facilitate in-depth discussion by involving a small number of participants.

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

Objectives

1. To impart the needed skills to a small group of people.
2. To motivate people to adopt new practices through skill training.

Field day or farmer's day: A method of influencing 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.

Objectives

1. To convince the participants about the applicability of the practice in their own situations.
2. To motivate them to adopt the practice by showing its performance and profitability under field conditions.

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.

Objectives

1. To expose the visitors to a new and different situation. This shall help in changing their outlook and extend their mental horizon.
2. To understand the gap in technology adoption.

3.4 EXTENSION THROUGH MASS CONTACT METHOD

Farmer Field Schools: Farm schools, Farmer life school, Information Communications tools are other methods included in group contract in recent times

Mass 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.

Advantages of mass method are:

- It is suitable for creating general awareness among the people. It helps in transferring knowledge in farming and changing opinions.
- Large numbers of people are communicated within a short span of time.
- Facilitates quick communication in times of emergency.
- Less extensive due to more coverage.

Few limitations in mass methods

- It is less intensive method.
- Little scope for personal contact with the audience.
- Generalized recommendations hinder application by individuals.
- Little control over the responses of the audience, and
- Difficulty in getting feedback information and evaluation of results.

Mass methods are:

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.

Objectives

1. To reach a large number of people quickly and simultaneously at a low cost.
2. To provide accurate, motivating, credible and distortion free information.

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.

Objectives

1. To focus attention of the people on some important topic.
2. To create general awareness about a program or project and to announce its progress.

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 Vanamahotsava (tree planting) and for a few years as in 'Grow More Food' campaign. Campaign on certain themes (say, environment, disease control etc.) may be organized over the whole world. Rat control can effectively done through campaigns only by involving all the farmers in the villages.

Objectives

1. To create mass awareness about an important problem or felt need of the community and encourage them to solve it.

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.

Objectives

1. To promote visual literacy.
2. To acquaint people with better standards.

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, big or small. 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.

Radio:

It is an electronic audio 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 change their attitude and reinforces 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.

Farm and Home broadcasting

The scope and structure of Farm and Home broadcasts have since changed and enlarged to meet the diversified needs and interests of the rural audience which grew in size over the years. The broad objectives of Farm and Home broadcasts are –

1. To inform the farming community about the latest scientific techniques of increasing production in all important farm enterprises.
2. To inform the non-agricultural rural population about the subsidiary and agro-based enterprises for improving their earnings.

3. To help the rural people to participate in constructive agricultural and social programmes for betterment of rural life.
4. To inform the rural women on improved home making, on supporting their male counterparts on improved farming and to encourage them to participate in decision-making for progress of scientific farming.

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 all relatively low unit cost. It is cosmopolite in approach and can be used to create instant mass awareness.

3.5 LET'S SUM UP

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 chapter helps the reader to learn various channels of communication to reach target audience. Understand individual, group and mass methods and its advantages and disadvantages to use in extension programme activities, and select and decide in using suitable extension methods, based on the needs and characteristics of target groups.

3.6 CHECK YOUR PROGRESS

Questions:

1. What is the significance of individual contact methods?
2. Mention few group contact methods and explain how demonstrations play important role in transfer of technology?
3. Give an account of ICT tools and write few examples where you were very successful?
4. Which is the most successful methods of contact and why?

3.7 SUGGESTED READINGS

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UNIT-4

ALTERNATE EXTENSION APPROACHES

Highlights of the Unit

- Objectives
- Introduction
- Extension Goals
- Technology Transfer
- Human Resource Development
- Alternate ways of Organizing Extension
- Present and future role of extension staff
- Let's sum Up
- Check your progress

4.0 OBJECTIVES

After completion of this unit, learners will be able to:

- Familiarise themselves with Alternate Extension Approaches to reach target audience.
- Select and decide suitable Extension Approach, based on the situation and objectives of the project.
- Understand the philosophy, advantages and disadvantages of each of the Approach and situation in which it can be adopted.

4.1 INTRODUCTION

Extension, as the organized exchange of information and the purposive transfer of skills, is a rather recent phenomenon. Obviously, transfer of information and skills has existed since the emergence of permanent agriculture. Today's practice is different

in that the process is dominated by organizations, and its scope has extended from disconnected local events to a complicated, large-scale, and even worldwide activity.

In this chapter, extension approaches are presented in terms of their most important organizational forms and their respective goals. The goal system reflects the power positions of various groups of actors. Therefore, without an understanding of the historical development and of the interest groups involved, present achievements and shortcomings of extension approaches cannot be evaluated. It is assumed that different forms of organizing extension are per se neither "good" nor "bad." Rather, extension services must be judged against their proper goals. The one universal yardstick, however, is their service function to the rural communities. Extension, which is not in touch with and does not significantly contribute to improving the life situation of its clientele, has lost its legitimization.

4.2 EXTENSION GOALS

Goals lead the actions of individuals, groups, and organizations. While pointing towards a future state, they are influenced if not determined by past experiences. They reflect the interests of their stakeholders and differ, therefore, according to specific life situations, power positions, and development philosophies. The prominent features of a system, such as its organizational structure, the choice of clientele, its operational design, and the methods used, are directly influenced by its set of goals and must be evaluated in terms of their contribution to goal achievement.

Main actors within the extension system are the members of rural communities, extension and other development personnel, researchers, and staff of commercial or public service or support organizations. Empirical evidence shows a variety of forms in which interaction among these groups is institutionalized. The variety of forms suggests a similar variety of goals, and either could be used to classify extension approaches. In practice, however, one finds an almost inseparable mixture of goals inhibiting a clear-cut classification. It seems more appropriate, then, to use a broader category, namely, selectivity with regard to clientele, and treat the respective goals as

a continuum. The two end points of this continuum would be marked as technology transfer and human resource development, suggesting either a rather narrow technical or a broader socioeconomic view of development.

4.3 TECHNOLOGY TRANSFER

Until the end of the eighteenth century, farming techniques developed gradually and steadily over centuries with few qualitative leaps. Colonialism and imperial expansion introduced innovations - the spread of maize, tobacco, potatoes are striking examples - but experimentation and dissemination of knowledge were basically at the local farm level. The rise of agricultural sciences has induced dramatic changes in this respect. Increasingly, new technology has been created outside the actual farming sector by public sector research organizations. More recently, private firms in industrialized economies find agricultural technology research and development a highly profitable business.

For decades the research-extension-farmer linkage, especially in developing countries, was based on a rather simple model. In order to achieve development, "modem" research results had to be transferred to the "traditional" farmer, and extension seemed to be the appropriate means to do so. The general faith in science and the commitment to modernization led to discrediting indigenous knowledge. Although this view is still held by many administrators, researchers, and extension agents, it is now being seriously questioned. Farming systems research and the "rediscovery" of farmers' knowledge (Chambers, Pacey, & Thrupp, 1989) have shown that "improved technology is a package of inputs and practices that usually comes from many sources" (UNDP, 1991, p. 2). The reexamination of the conventional view on agricultural knowledge cannot, however, result in questioning the important role of research as the source of new technology. For developing countries, one observes that the accelerated growth and spread of problems - such as the degradation of marginal land - surpass the problem-solving capacities of the local population. What is called for

is a setting of new priorities and the building of knowledge systems based on problem solving rather than on information transfer.

4.4 HUMAN RESOURCE DEVELOPMENT

The concept of human resource development is much broader than that of technology transfer, though both are closely interrelated. Increasing complexity not only of technology but also of the life situation of farmers even in remote areas demands new skills. With the help of these skills, rural women and men "acquire a better insight into the network of problems and recognize the alternative solutions available" (Albrecht et al., 1989, p. 34). Traditionally, teaching the basic skills of literacy and numeracy has not been an extension activity. The limited success of literacy programs in poor countries has drawn attention to non-formal education in which extension has an important part to play (Coombs and Ahmed, 1974). Whereas in most cases this would require a coordinated effort of different organizations of which extension is but one, human resource development may also be regarded as genuine extension content.

Extension may substitute over a certain period activities such as vocational education that are not yet in place, but more important will be the teaching of managerial and organizational skills that will enable farmers to increasingly solve their own problems. Human resource development thus aims at what may be called "critical competence." Extension clients know what to ask for; they can evaluate the appropriateness of technical information and are responsible decision makers. Persons with this qualification exist in every rural community, and they will be the ones who actively seek further assistance. One important task of any extension system will therefore be to extend human resource development to underprivileged groups with less access to formal or vocational education - women farmers, rural youth, and generally small farmers in remote areas.

4.5 ALTERNATIVE WAYS OF ORGANIZING EXTENSION

The goals of extension may vary, as was shown, within the overall system as well as between different extension organizations. In addition, specific objectives may sometimes contradict each other. While smaller systems may come close to pursuing a consistent set of objectives or reconciling conflicting interests, large-scale organizations must work on a compromise basis. In this respect, Axinn's principal observation is of particular importance: "The success of an agricultural extension programme tends to be directly related to the extent to which its approach fits the programme goals for which it was established" (Axinn, 1988, p. 135).

The alternatives to organizing extension demand choices on various levels:

- Public versus private
- Government versus nongovernment
- Top-down (bureaucratic) versus bottom-up (participatory)
- Profit versus non-profit
- Free versus cost-recovery
- General versus sector
- Multipurpose versus single purpose
- Technology driven versus need oriented

In practice, extension organizations everywhere pursue the overall goals of technology transfer and human resource development, though the emphasis will differ. Within each organization there is a mix of objectives, and within countries there is often a mix of organizational patterns. When presenting an overview on the most important patterns, we will be using a well-established terminology (Axinn, 1988; UNDP, 1991), though the grouping is different. We will differentiate between approaches that, at least in principle, target all persons in rural areas engaged in farming and those that purposely select clientele according to specific criteria.

General Clientele Approaches

I. Ministry-Based General Extension*:* Shortly before or after independence, organizing agricultural extension work under the wings of the ministry of agriculture seemed to be an ideal solution for many African and Asian governments. All options for reaching large numbers of clients and serving their needs in terms of quality information and assistance appeared to be open. The original colonial model combined research and extension within the same organization. All important aspects of small-holder agriculture - plant production, animal husbandry, home economics - could be attended to as the ministry established respective sections under its jurisdiction. The fact that the ministerial hierarchy followed the country's territorial subdivision allowed the systematic expansion of the system "down" to the village. The generalist nature of field extension staff functions corresponded to the set of problems faced by non-commercial growers. To cater to specific needs - in terms of technology or in terms of target groups - specialists could be employed. Thus clientele included in principle all persons engaged in agriculture. Commercial service and support organizations lacking, village-level extension staff could be expected to supplement information by rendering services necessary to apply it productively. A uniform and nationwide organizational pattern seemed to facilitate information flow - including the infusion of expatriate expertise - and corrective measures whenever weaknesses were identified. Public interest was to guide goal setting, programme formulation, and the implementation of fieldwork.

A review of the last thirty years of extension work in Africa and Asia shows that reality is quite far for failure are complex and manifold and cannot be removed from this vision (Moris, 1991). The reasons for failure are complex and manifold and cannot be reduced simply to incompetence or the ill-will of national governments.

One reason is the contradictory nature of goals. Public interest implies serving farmers *and* the urban population, securing subsistence production *and* promoting cash crops for export, reaching the masses of rural households and serving the needs of specific groups, extending assistance to high-potential *and* disadvantaged

producers. In short, priorities will have to be set, and these are all too often pro urban in terms of price policy, favoring innovative individuals within the modem sector, neglecting poorer strata, and forgetting about women farmers.

In many ways, the hierarchical and highly bureaucratic way in which the services are organized hampers a full realization of their potential. Priority setting for research is rarely based on extension field evaluations because the system does not foster critical upward communication.

The way in which technical (and other) knowledge is transformed into field messages frequently leads to distorted and outdated information.

In the eyes of the ministry, extension has never been a purely educational activity. This is a legitimate view as long as the different functions to be performed by extension personnel are compatible and basically client oriented (such as helping to organize input supply). Non-educational activities may include anything from statistical data collection to attending to foreign visitors. Incompatible with and clearly detrimental to regular extension work are such activities as supervising credit repayment, policing disease control measures, organizing "voluntary" community work, and electioneering.

Ministry-based extension has been unable to reach a majority of its potential clientele for economic, socio-psychological, and technical reasons. Even dramatic quantitative increases in personnel - more staff closer to the farmer - have not produced manageable client-to-agent ratios. In recent years, the trend has even been negative. Financial constraints have produced a strong pressure to reduce staff, and the field level has been hit hardest. Those remaining have little if any material resources left to maintain mobility.

In addition, many extension workers select the more responsive section of their clientele. They may have to fulfill production plans, they may want to improve job satisfaction or status, or they may simply be prejudiced against certain target groups. Lastly, extension often has little to offer in terms of messages to large sections of the

rural population. Adequate and location-specific answers to a farmer's problem are often not available because it has not been a research concern or the solution has simply not reached the field.

Today's situation is aggravated by two additional aspects which refer to the internal structure of the service: management problems and lack of control from below. Ministry extension employs thousands of persons working under a wide variety of circumstances. Decision making and management are highly centralized and formalized. Extension fieldwork, on the other hand, demands location-specific, flexible, and often quick decisions and actions. Managing the "invisible" man or woman (Chambers, 1974) must be highly ineffective as long as he or she is expected to receive and execute orders.

All these problems are well known, and criticism has come both from within and outside the ministry. What has been lacking is organized feedback from clientele. Farmers may show their discontent by refusing to cooperate with extension, but they have virtually no way of influencing institutional reforms.

II. Training and Visit Extension (T&V). In the strict sense of the word, T&V is not a separate approach but one way to organize ministry-based extension. The controversial debate on the merits of T&V tends to obscure the fact that it was originally meant to solve some very specific problems of conventional extension services.

Benor and Harrison's original paper - one of the most influential extension publications ever - critically evaluates the ministry-based extension system of the 1970s (Benor & Harrison, 1977, p. 6-9). They found:

- An inadequate internal organizational structure
- Inefficiency of extension personnel
- Inappropriateness or irrelevance of extension content
- Dilution of extension impact

Whichever impact is reached serves "only a few favored farmers in favored areas rather than the bulk of the farming community".

When first T&V was being introduced, seemed to be strikingly original and promising because it combined a set of rather convincing simple elements in a plausible way. Rather than trying to reach all farmers directly and thus preprogramming constant failure, the system concentrates on *contact farmers* expected to pass information on to fellow farmers with similar problems. To ensure regular field contacts, facilitate supervision and communication, and set clear and attainable objectives, fixed *visits at regular intervals* are prescribed. Similarly, regular sessions for extension workers to receive *training* and discuss administrative matters are held. Thus costly refresher courses are avoided, knowledge may be enhanced step-by-step, and up-to-date information can be fed into the system.

In addition, T&V operates under the assumption that its extension workers are exclusively engaged in educational activities and that a unified extension service exists. Agricultural research must not only be effective but also work in close collaboration with extension. Both external and internal evaluations are to be used to constantly modify and adapt the system to changing conditions.

Simple as the prescriptions seemed, implementation proved to be difficult. First, the contact farmer concept - implying a two-step flow of information from the extension worker to the contact, farmer and from there to other farmers - has frequently failed. Extension workers have been blamed for "wrong selection," but the root of the problem lies within the purely technical philosophy of T&V. Other aspects such as communication skills, leadership, and organizational capacities are neglected. In practice, T&V has been a top-down approach leaving little possibility for participation and initiative, both for farmers and village extension workers. Too little emphasis has been put on critical feedback based on self-evaluation. As a result, rigidity rather than flexibility characterizes local fieldwork.

Secondly, Benor's fear that extension services may "rapidly run out of anything to extend" (Benor & Harrison, 1977, p. 8) characterizes many T&V field situations. The standardized messages passed on are often of little relevance to local conditions. Once T&V was extended to less favored regions, it soon became clear that technology of the green revolution type showing quick and visible results is not available. Still, training sessions were held and visits made according to schedule, leaving behind disinterested farmers and demotivated extension workers.

The limited success of T&V in its present form as a nationwide extension system should not discredit the quality and appropriateness of many of its elements. Applied less rigidly and combined with the tools of human resource development as well as with the concept of participation, these elements may constitute a valuable base for reforming extension organizations, large or small (Nagel et al., 1992).

III. The Integrated (Project) Approach: Integrated approaches aim at influencing the entire rural development process. Extension is only one though often crucial element in this strategy which targets the entire population in a given area but emphasizes work with disadvantaged groups. Integrated approaches are generally implemented in the form of large-scale and foreign-funded projects aiming at alleviating mass poverty in rural areas on the basis of "a simultaneous improvement in the utilization of natural resources and of human potential" (Rauch, 1993, p. 6). Measures to promote production are coupled with a strong emphasis on self-help. The underlying concept is typically multi-sectoral.

Evaluations of more than a decade of integrated rural development (IRD) projects have revealed serious shortcomings in reaching the goal of mass poverty alleviation (IBRD, 1987; BMZ, 1990). Sizeable numbers of the poor were not reached by project activities, nor were positive effects consolidated on a sustainable basis. Project deficiencies were in part management related and very often due to a serious underestimation of the great complexity of multi-sectoral programs with ambitious goals. The disregard of the target group principle and of due consideration for

framework conditions (economic and institutional) played an even more important role, as did the lack of compatible technical solutions.

Recent efforts to improve regional rural development (RRD) projects and enhance chances for a broad and sustainable impact (Rauch, 1993) are relevant for all general extension approaches. The key concept is the availability of locally adapted solutions established on a common basis. This requires not only participatory technology identification, test, and dissemination, but also an active role by the change agency in mediating between different institutions involved and their interests. A particular emphasis is laid on dealing with adverse framework conditions, explicitly taking them into account and attempting to influence them in favor of clients. Finally, in order to achieve these improvements, new efforts must be made to specify and operationalize (extension) objectives and concepts (sustainability, participation, gender-specific target-group approach, and poverty alleviation).

IV. University-Based Extension: While the Cooperative Extension Service (CES) of the United States is still the only system in which the main extension function remains within the university, some developing countries, notably India, have integrated educational institutions into practical extension work. Within the United States of America, state universities have traditionally cooperated with local counties and the U.S. Department of Agriculture in doing extension besides education and research. Within the last 130 years, extension goals of the land-grant colleges have shifted from practical education to technology transfer and, more recently, to a much broader concept of human resource development.

With the emergence of strong private and other public sector research and development organizations and dramatic changes within the agricultural production sector, CES is facing new challenges with regard to coordination and cooperation. Apart from its traditional roles, *networking* will become a primary role (Bennet, 1990, p.

16). In this model, industry as well as intermediate and end users of knowledge become part of the extension system.

While in most countries, the main contribution of educational institutions to extension will be the training of qualified, dedicated, and responsible personnel, some Indian agricultural universities have come close to the U.S. model without taking over the full load of extension work. In the field, they have taken over functions which are only inadequately performed by the ministry, thus supporting general extension work. Remarkable features are direct assessment of clients' needs, user-oriented research, quality training for state personnel, and a strong linkage between academic education and field practice. Models vary from state to state. The Punjab Agricultural University (PAU) has its own multidisciplinary extension team in each district, engaged in adaptive research, training, and consultancy. Backed up by extension specialists on campus, they are transmitters and receivers of experiences from researchers, farmers, and state extension workers. At PAU, a unique system of processing these experiences is practiced. Regular workshops are held which unite university and department staff from research and extension together with outstanding farmers. New findings and feedback are presented, evaluated, and published as a "Package of Practices" to be used by all extension staff for the next season (Nagel, 1980).

In the Philippines, which works with ministry-operated extension, university field contacts have been combined with practical development work. The University of the Philippines at Los Baños (UPLB) has its own "social laboratory" in rural areas. Transfer of ideas is not limited to production technology, but includes the testing of communication strategies as well as helping farmers to organize themselves. Experiences are channeled back into UPLB teaching and research (Axinn, 1988, p. 102-103).

Animation Rurale. For a historically rather short period, the concept of Animation Rurale (AR) gained importance in francophone African countries such as Senegal, Ivory Coast, and Madagascar (de Wilde, 1967, p. 391-414; Joerges, 1967). Though the

original approach is no longer pursued, some of its elements are now being reintroduced into rural development programs.

Animation Rurale was an answer to the authoritarian and often repressive nature of intervention before independence. Developed originally by the French Institut de Recherchesetd' Application des Méthodes de Development (IRAM), it shows many parallels to the Brazilian experiments of Paolo Freire.

Integration of rural areas into the national system was to be achieved by initiating a dialogue between rural communities (*collectivities*) and the state. In a dialectical way, increasing competence of villagers to express their own needs was to liberate them from colonial dependence. In order to initiate and perpetuate this process, AR relied on a large number of voluntary collaborators, so-called *animateurs.* Selected by the villagers themselves these *animateurs* had to be experienced and well-respected farmers but not traditional leaders. Training, supervision, and support of *animateurs* were organized by the Ministry of Rural Development. Their task was to initiate discussions within the community on local needs and objectives, thus empowering rural people for a dialogue with the state. At the same time they were to "interpret" government plans to the villagers and acquaint them with services available. The long-term perspective was a replacement of traditional institutions and the creation of "development cells" able to negotiate contracts with the state bureaucracy.

Sülzer and Payr (1990, p. 34) maintain that AR "did not fail as a philosophy of extension... [although]... it did not achieve a large-scale breakthrough on a national level." Lack of sustainable impact was due to internal as well as external factors. The objectives of AR were extremely difficult to operationalize and, as a result, the role of *animateurs* remained unclear. In addition, lack of rewards and selection mistakes contributed to the fact that many *animateurs* soon lost interest in their work. Farmers, as it turned out, were more interested in receiving qualified technical assistance, and even if *animateurs* had successfully initiated village projects, it was the "technicians"

who reaped the benefits. Lastly, it is highly questionable whether the administration was seriously committed to creating a system which would curtail its own power.

What has remained is the philosophy of empowerment and many of the practical experiences. Many NGOs use the ideas of Animation Rurale often without realizing their roots. The present discussion on participatory extension shows its lasting influence.

Extension to Selected Clientele

V. Commodity Based Extension*:* Next to the ministry-operated general approach, commodity-based extension run by government, parastatals, or private firms is the most frequent extension organization. Clients may be dispersed over a large area or closely connected, as in the case of large, centrally operated irrigation projects. Commodity-based extension is the predominant feature in many francophone countries of Africa (Schulz, 1973), but is also strong in other countries with commercial or export crops.

The original rationale was the generation of revenue as well as the assured supply of tropical products for the colonial powers. Today, goals are still clearly and intentionally production and profit oriented. All aspects of producing and marketing a particular crop are vertically integrated, spanning the whole range from research, advice, and material support given to farmers, to organizing marketing and even exports. Proponents of the approach argue that, by infusing modern technologies and the monetary incentives into traditional farming; a cumulative chain of effects is triggered, thus contributing to overall development.

Advantages in terms of organizing the extension function seem obvious. One generally works with well-tested technologies. Objectives and targets can be clearly defined and the organizational structure kept simple. The focus on only one or two crops facilitates training of extension workers who are agents of the society or board concerned. Control of agents and farmers is easy, because they are judged in terms of defined targets.

A closer look at these advantages reveals that they are largely defined from the perspective of the commodity organization. This poses no problem as long as organizational and clients' goals are identical, as was the case for coffee, tea, or sisal boards in the private plantation sector. For small farmers, the situation may be quite different. The rigidity of the system leaves little room for incorporating farmers' needs. The border between control and coercion is often crossed, for example, when farmers are forced to plant commercial crops at the expense of traditional subsistence crops. Extension workers are regarded as successful once they have brought farmers to producing "what and how" the organization wants. The obvious advantage of guaranteed marketing does not automatically entail security for the agricultural producer. Farmers cannot react quickly to price fluctuations, and in some cases quality standards are arbitrarily set in order to increase personal or organizational profits. Many governments have used the approach to excessively extract revenue by dictating low farm-gate prices.

Strengths as well as limitations of the commodity approach lie in its narrow focus. It is useful in terms of technology transfer but leaves out important public interest issues (such as environmental protection), as well as target groups (such as noncommercial producers). A successful combination of general and commodity-based extension at the national level, as practiced in East Africa, demands clear policy goals and highly efficient management.

VI. Extension as a Commercial Service: Commercial extension is a rather recent phenomenon and typical of either industrialized forms of agriculture or the most modem sector of an otherwise traditional agriculture. It may be either part of the sales strategy of input supply firms or a specialized consultancy service demanded by an agricultural producer. In both cases, the goal of the organization or the individual is profit earning, which in turn is tied very closely to customer satisfaction. Most directly this is the case for private consultants who will be retired only if their clients feel that

expenses made have been profitable. Large input supply firms or rural banks that use their own extension workers as sales personnel must also have a long-term perspective with regard to the competitiveness of their products and services. Negative effects of incorrect application or use will be attributed to the product itself. The clients of commercial extension will also be profit oriented. Their objective is the optimal utilization of purchased inputs or contracted expertise.

The emergence of commercial extension has influenced the debate on who should bear the costs of extension. With escalating budget deficits, the idea of extension as a free public service is no longer being generally accepted. It is argued that those who can afford it should actually pay for advisory services. In the case of commercial input suppliers, the solution is very simple: the costs of extension are included in the product price, as are the costs for research or advertisement. Private consultancy, on the other hand, is costly and affordable only to either large-scale or highly specialized producers.

As a general trend, one observes that public extension in industrialized countries has been under pressure to introduce cost sharing or altogether commercialize advisory work. An approach which combines commercial and public elements is at present being introduced in some of the eastern states of Germany. For example, the Ministry of Agriculture in Brandenburg subsidizes consultancies once they have actually taken place. Farmers have the option either to organize themselves in "extension rings" and employ their own extension workers or to choose an extension consultant who is officially accredited by the ministry once he or she organizes at least twenty clients in an "extension association." In both cases, up to 80 per cent of extension costs within a certain limit are reimbursed to the farmer.

Privatization and cost sharing are propagated in the name of greater effectiveness and efficiency, but are largely motivated by financial constraints. It is obvious that the private sector will be active only in case of reasonable returns, and they will not be concerned with public interest issues:

Because of the selective participation of the private sector, the provision of public good types of information will have to remain a public sector responsibility... public and non-profit organizations... will have to work together to satisfy the needs of those in "orphan" areas. (Umali & Schwartz, 1994)

VII. Client-Based And Client-Controlled Extension: One way of dealing with the shortcomings of large extension systems has been to localize extension and utilize the self-help potential of rural groups. Often organized by outsiders, these decentralized approaches are in a better position to serve the needs of specific target groups, notably those in disadvantaged positions. Close contact with their clients and intimate knowledge of their life situations are essential for the planning of problem-oriented extension activities. Local personalities are identified who take over leader functions once the external (nongovernmental) organization withdraws. The principles of these organizations (awareness, empowerment, participation, self-help) are close to the philosophy of Animation Rurale without the national dimension.

The impact of client-based approaches must be seen on two levels. Directly, they provide benefits to their clients. The diversity and large number of small projects forbid a general statement on their effectiveness in terms of human resource development. It appears, however, that their weakness lies more in the technical field (UNDP, 1991, p. 22). Besides, they can reach only a very limited number of people. Apart from this, they perform an important role as organizational innovators. They have proved that participation can work in practice and that many farmers are highly competent partners in technology development. Government extension services have been forced to rethink their top-down approach, to accept human resource development as an equally important extension goal, and to address the problems of rural women.

A rather unique approach has been practiced in Taiwan, where a large share of extension work is done through farmers' associations (Lionberger & Chang, 1970; Axinn & Thorat, 1972). Organized at provincial, county, and township levels,

membership totaled 90 per cent of Taiwanese farmers. Extension education is done by agents employed by the farmers' associations at the township level and financed largely by the farmers themselves.

Unlike the small self-help groups discussed above, there are strong and institutionalized linkages with research and other services. The overall extension policy is defined by the government. On the other hand, the clientele is quite different: farms are highly modernized and extension advice is demand driven.

4.6 PRESENT AND FUTURE ROLE OF EXTENSION STAFF

Person-to-person communication has traditionally been the most important form of information transfer. Print media as well as radio and television were of a supplementary nature because they frequently lacked a target group or location specificity and information was not up-to-date. Revolutionary changes in communication technology have dramatically increased the speed and quality of information transfer and changed the role of extension workers in industrialized countries. Electronic communications systems may in part replace personal visits, and one of the major tasks of any agent will be to link her or his clients with other suppliers of information.

Notwithstanding the fact that their use is not restricted to industrialized countries, the fascination with modem communication means tends to obscure the fact that most extension personnel - 90 per cent of which are located in developing countries (FAO, 1990) - are working under extremely difficult and disadvantageous conditions. In fact, little has changed during the last two decades to remedy the basic ills, and the field agent is still the weakest link within the system.

There is a wide discrepancy between organizational goals and the potential of even well-trained and dedicated field staff. Early Indian community development activities covered close to fifty areas (from reclamation of wasteland to improved rural housing on a self-help basis), all to be administered by the local village-level worker (Dube, 1958, p. 19-21). Fieldwork in most developing countries is characterized by

conditions that foster low morale: lack of mobility, virtually no equipment, and extremely low salaries. For many extension workers, tapping additional income sources is a question of physical survival. Quality performance is further impeded by low educational qualifications and lack of advancement possibilities (Swanson, Farner, & Bahal, 1990, p. 55-64).

While working conditions of extension personnel have deteriorated, expectations with regard to their role are increasing. They are no longer to be simply transmitters of technical knowledge. They are to practice participatory methods, recognize and respect gender issues, identify indigenous needs and problem solutions, and serve as a link to the world outside the village, to name but a few of the present topics. The emerging role is closer to that of a "socio-economic community worker" (Blackburn & Flaherty, 1994, p. 16) than a technical expert, but their training is insufficient for either.

The situation sketched above is well known and documented. The sheer dimension of the problem surpasses, however, the capacities of poorer countries, notably in Africa. Foreign-funded projects have addressed the issue in a piecemeal fashion and have often drained non- project areas of personnel. Staff reductions on a national level have not even secured the status quo. Neither approach has solved the basic dilemma: insufficiency of material and human resources to reach universally accepted societal goals. Having to count on their own resources for extension, many countries will not be in a position to implement technology transfer, much less the more demanding strategy of human resource development. Regardless of specific extension approaches, there is no alternative to a strong international commitment to strengthening and revitalizing extension personnel resources.

4.7 LET'S SUM UP

The success of an agricultural extension program tends to be directly related to the extent to which its approach fits the program goals for which it was established. The Extension Functionaries have several options of choosing the extension approaches

suitable to the prevailing situations, right decision and selection of the single or combination of approaches will help the extension personnel in carry out the job successfully.

4.8 CHECK YOUR PROGRESS

1. Enlist the extension goals and substantiate with your experience?
2. What are the alternative extension approaches and explain its importance?
3. How do you justify commodity based extension opportunities for commercial crops?
4. What do you know about client based and client controlled extension?
5. Explain about University based extension?
6. What do you know about integrated project approach?

4.9 SUGGESTED READINGS/ REFERENCES

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BLOCK II:

NEW AND EMERGING DIMENSIONS IN AGRICULTURAL EXTENSION

UNIT-1

REVITALIZATION OF AGRICULTURAL EXTENSION SYSTEM

Highlights of the Unit

- Objectives
- Introduction
- Historical Perspective
- T&V System
- Extension Reforms
- Salient features of ATMA
- Let's sum Up
- Check your progress

1.0 OBJECTIVES

After going through this unit, the learner will be able to understand the

- Need for reforms in Agricultural Extension
- Salient features of reforms in Agricultural Extension
- Dovetailing the strengths of T & V system
- Policy approaches for reforms in Extension

1.1 INTRODUCTION

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.

1.2 HISTORICAL PERSPECTIVE

The basic extension machinery in India today is the outcome of the short-lived Grow More Food (GMF) campaign that was started by the then Food Minister Shri

K.M. Munshi in 1947. This campaign fizzled for want of a formal extension organization. In 1948, Albert Meyer spearheaded the first post-independence extension program in the district of Etawah, in Uttar Pradesh. This was the first example of peoples' participation in rural development. It also marked the beginning of the multi-purpose, village extension worker that exists even today in India. Experiences generated through this pilot project were the precursors of the Community Development Programme (CDP) that was initiated in 1952 by the Indian Planning Commission. The program was scaled up in 1953 as the National Extension Service (NES) to provide widespread extension coverage and with greater people's participation. This arrangement became the permanent extension setup for the country.

The late 1950s saw large-scale food deficits, thus compelling the Government to abandon its comprehensive rural development strategy and to concentrate solely on increasing food production. In April 1959, an agricultural production team sponsored by the Ford Foundation highlighted the importance of food self-sufficiency. This Team, in its report entitled "India's Food Crisis and Steps to Meet It," suggested that intensive efforts should be made to increase food production by using a combination of technical know-how and concentrating manpower and resources in selected areas. This was the beginning of the Intensive Agricultural District Program (IADP) or, as more commonly known, the *Package Program*.

1.3 T&V SYSTEM

The introduction of the Training-and-Visit (T&V) extension system was an important milestone in the history of extension in India. The basic premise of T&V was that there was enough technology available awaiting diffusion to and adoption by farmers. The T&V extension system was first introduced in 1974-75 on a pilot basis in the Chambal Command area of Rajasthan and Madhya Pradesh. Based on positive feedback, the project was further extended to 17 other states in 1978-79.

The Village Extension Worker (VEW) was the most important link at the field level under this system. The number of farming households to be covered by one VEW was rationalized to a range of 300 to 1200 families. The identified number of families was divided into eight groups and 10 per cent of farmers of the group were identified as contact farmers. The VEW would then visit the contact farmers according to a well-planned schedule covering the circle of eight groups at least once in a week or a fortnight depending on the situation. Two days were fixed during this period for two types of training: a one-day fortnightly training conducted by the Subject Matter Specialists (SMSs) to expose a group of 30-40 VEWs operating in the area to three to four selected agricultural practices and another one-day weekly programme informally coordinated by the Agriculture Extension Officer. Thus, out of twelve days in a fortnight, a VEW would spend eight days in the field, two days in training and two days clearing pending work.

Strengths of T & V System

The main strengths of the Training and Visit (T&V) System were the close Research and Extension linkage which provided an opportunity for the Subject Matter Specialists (SMSs) and the extension staff at Sub-divisional and Block level to interact regularly through monthly workshops. The main purpose was to build-up technical skills of Subject Matter Specialists (SMSs) regularly so that they can meet effectively the actual technological needs of farmers and adapt the recommendations suitably. The other purpose was that researchers and SMSs discuss and formulate relevant production recommendations for subsequent transfer to Agricultural Extension Officers and Village Extension Workers in the next fortnightly training sessions and ultimately reaching farmers through Contact farmer.

The other strength of the T&V system was the continuous trainings of field level functionaries by SMSs. This was made possible due to the availability of adequate manpower at all levels. The other important feature of T&V was, the Village Extension Worker (VEW), visiting farmers' field through contact farmers regularly on a

scheduled day, to advise and train farmers on recommendations of relevant agricultural technology and to encourage them to adopt.

Constraints of T & V System

The research studies have revealed that T&V system had not created uniform impact. It achieved success mainly in irrigated areas for the selected crops like Rice and wheat. The system did not give due emphasis to other enterprises such as animal husbandry, fisheries, horticulture etc. Even within the agriculture, no visible impact was created on the crops, which are grown under rainfed agriculture like millets, pulses and oil seeds. The large increase in staff from district to village level put a heavy burden on state resources, with most funds being spent in meeting the salary component. The large contingent of village level workers were educated up to secondary school level and therefore were not able to transfer the technology as intended due to their poor absorption of the know-how.

The other constraints observed were:

I. Multiplicity of Public Extension System
II. Narrow focus of the Agricultural Extension System
III. Lack of farmer involvement in Extension programme planning
IV. Lack of local capacity to validate and refine technologies
V. Absence of public sector linkages with private sector
VI. Lack of gender concern
VII. Lack of involvement and coordination among line department functionaries
VIII. Absence of Technology assessment and refinement and lack of targeting in extension

Even though, the project came to an end in early 1990s, the T & V System was continued in some states. Over a period of time, the states also modified the system due to lack of resources to fund basic extension activities. However, the following

constraints were also observed in the post T&V extension systems across the states in the country in addition to above constraints:

I. Lack of transparency and accountability
II. Inadequate technical capacity among the extension functionaries
III. Supply driven rather than market driven extension
IV. Lack of emphasis on farmers' trainings
V. Inadequate operating resources and financial sustainability

1.4 EXTENSION REFORMS

Extension Reforms were introduced during 2005-06 by the Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Government of India 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

Purpose of Extension Reforms

The purpose of Extension Reforms Scheme is to promote new institutional arrangements and operational procedures – not merely strengthen the existing extension system. One key concept or goal is to decentralize decision – making to the district level through the creation of Agricultural Technology Management Agency (ATMA). A second goal is to increase farmer input into program planning and resource allocation, especially at the block level, and to increase accountability to stakeholders. A third major goal is to increase program coordination and integration, so that the program thrusts such as Farming System Innovations, Farmer Organizations, Technology gaps and Natural Resource Management can be more effectively and efficiently implemented.

1.5 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 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 levels. 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.

What is ATMA?

ATMA is a 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 the public Agricultural Technology System (ATS). It is a registered society responsible for technology dissemination at the district level. As a society, it would be able to receive and expend project funds, entering into contracts & agreements and maintaining revolving accounts that can be used to collect fees and thereby recovering operating cost.

Why ATMA?

The ATMA at district level would be increasingly responsible for all the technology dissemination activities at the district level. It would have linkage with all the line departments, research organizations, non-governmental organizations and agencies associated with agricultural development in the district. Research and Extension units within the project districts such as ZRS or substations, KVKs and the key line Departments of Agriculture, Animal Husbandry, Horticulture and Fisheries

etc. would become constituent members of ATMA. Each Research-Extension (R-E) unit would retain its institutional identity and affiliation but programs and procedures concerning district-wise R-E activities would be determined by ATMA Governing Board to be implemented by its Management Committee (AMC).

Roles and Responsibilities of ATMA

ATMA is supported by Governing Board (GB) and Management Committee (AMC). 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.

Table 1.1 ATMA GOVERNING BOARD (GB)

Composition:			
Sl. No.	Designations		Cadre
1	District Magistrate / Collector	-	Chairman
2	Chief Executive officer (CEO) Chief Development Officer (CDO)	-	Vice – Chairman
3	Joint Director / Deputy Director (Agri)	-	Member
4	A representative from ZRS / KrishiVigyan Kendra	-	"
5	One Farmer representative	-	"
6	One Livestock Producer	-	"
7	One Horticulture Farmer	-	"
8	Representative of Women Farmers interest group	-	"
9	One SC / ST farmer representative	-	"
10	A representative of NGO	-	"
11	Lead Bank Officer of the District	-	"
12	A representative of District Industrial Center	-	"

13	Representative of Agriculture Marketing Board	-	"
14	Representative of input supplying Associations	-	"
15	One Fisheries / Sericulture representative	-	"
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 A.P.C 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

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

ii. 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.

iii. Receive and allocate project funds to carry out priority research, extension and related activities within the district.

iv. Foster the organization and development of Farmers Interest Groups (FIGs) and Farmers Organizations (FOs) within the district.

v. Facilitate the greater involvement of private sector and firms and organizations in providing inputs, technical support, agro-processing and marketing services to farmers.

vi. Encourage agriculture lending institutions to increase the availability of capital to resource poor and marginal farmers, especially SC, ST and women farmers.

vii. Encourage each line department, plus the KVK and ZRS, to establish farmer advisory committees to provide feedback and input into their respective R – E programs

viii. Enter into contracts and agreements as appropriate to promote and support agricultural development activities within the district.

ix. Identify other sources of financial support that would help ensure the financial sustainability of the ATMA and its participating units.

x. 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.

ix. Arrange for the periodic audit of ATMA's financial accounts; and Adopt and amend the rules and by-laws for the ATMA.

ATMA Management Committee (AMC)

1	Project Director of ATMA	Chairman
2	District Head of Dept. Agri.	Member
3	District Head of Dept. Horticulture	"
4	District Head of Dept. Animal Husbandry	"
5	District Head of Dept. Fisheries	"
6	District Head of Dept. Sericulture	"
7	District Head of other appropriate line Departments, that may be important within a district	"
8	Head, Krishi Vigyan Kendra	"
9	Head, Zonal research Station	"

10	One representative of NGO' in-charge of farmers organization	"
11	Two representatives of Farmer's organizations (one year rotation basis)	"

Key Functions of Management Committee (MC)

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

i. Carryout periodic Participatory Rural Appraisal (PRAs) to identify the problems and constraints faced by different socio-economic groups and farmers within the district.
ii. 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.
iii. Prepare annual work plans that would be submitted to the ATMA Governing Board for review, possible modification and approval
iv. Maintain appropriate project accounts for submission to Technology Dissemination Unit (TDU) for audit purposes
v. Coordinate the execution of these annual work plans through participant line departments, ZRSs, KVKs, NGOs, FIGs /FOs and allied institutions, including private sector firms.
vi. 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,
vii. Provide annual performance reports to the Governing Board outlining the various research extension and related targets that were actually carried out, including targets achieved.

viii. Provide secretariat to governing board and initiate action on policy direction, investment decisions and other guidance received from the Governing Board.

Linkage Mechanisms

The following Research Extension-Farmer (R-E-F) linkage mechanisms have been proposed under Extension Reforms Scheme in addition to the existing mechanisms.

I. The State Level Inter-departmental Working Group is constituted to ensure effective coordination among the departments like agriculture, horticulture, animal husbandry, fisheries, soil conservation and State Agricultural Universities (SAUs) under the chairmanship of the Agriculture Production Commissioner / Secretary (Agriculture). It will promote and establish integrated approach in transfer of technology at state, division and district level by agriculture and line departments. It also oversees and support agriculture extension and research activities being undertaken by ATMA and to make policy interventions on interdepartmental matters etc. A Nodal Cell would be established with the office of the Agriculture Production Commissioner / Secretary (Agriculture) / Director (Agriculture) to monitor scheme activities in each the selected districts of the state. This working group shall meet once in a month.

II. Agricultural Technology Management Agency (ATMA) would be established in each selected district for integrating research and extension activities and for decentralizing day-to-day management of the public agricultural technology system. ATMA would be responsible for technology dissemination activities and have linkages with all the line departments, research organization as well as the NGOs and agencies associated with agriculture development in the district.

III. The Governing Board (GB) and Management Committee (MC), ATMA. The governing board constitute of 16 members representing all the stakeholders and farmers representing different enterprises in the district. It is a policy making body and provide guidance as well as reviews the progress of functioning of the ATMA. It will review and approve the strategic annual action plans that are prepared and submitted by the participating units. It will provide feedback and direction to the participating units, as needed about the various research and extension activities being carried-out in the district. It will facilitate the greater involvement of private sector, NGOs and farmers organizations in providing inputs, technical support, agro-processing and marketing services to farmers. ATMA Governing Board will meet once in two months.

IV. The ATMA Management Committee (AMC) constitutes line departmental heads, ZRS, KVK, NGO and two representatives from farmers' organizations. It would be responsible for planning and reviewing of the day-to-day activities of ATMA. It will carry out periodic participatory rural appraisals (PRAs) to identify the problems and constraints faced by the different socio-economic groups of farmers. It will prepare an integrated strategic research and extension plan(SREP) for the district that would specify extension priorities reflecting the important farmer constraints identified and also short and medium term adaptive research for its validation and refinement. The district level line departments and research units would organize in-service training and support activities for the block and field level extension staff. The Management Committee also prepare Block Action Plans (BAPs) that would be submitted to ATMA Governing Board for approval and coordinate the extension through line departments, ZRS, KVKs, NGOs, FOs and Private Sector firms. The MC shall meet every month under the Chairmanship of P.D., ATMA.

V. Farm Information & Advisory Centre (FIAC): It would be created at the block or mandal level. It would, in effect, manage key extension programs within the block/mandal level, leaving other service and developmental activities to be managed by other units or personnel within the line departments. In effect, the FIAC would act

as the extension planning and operational arm of ATMA. It would be the common meeting point for line departments to prepare detailed extension programs and coordinate their implementation. It would also be the level where farmer input could be more effectively mobilized through a Farmer Advisory Committee (FAC). Such a mechanism, including representatives of all major stakeholders, would help set extension priorities across each program area and allocate resources.

The FIAC team would be responsible for operationalizing the SREP in each block and moving toward a single window extension system. The FIAC team would prepare Block Action Plans (BAPs) that would detail extension activities to be undertaken. This plan should be approved by the FAC before it could be forwarded to the ATMA. The ATMA Management committee (AMC) would ensure that these plans were technically and administratively feasible, and consistent with the SREP, before being forwarded to the ATMA Governing Board (GB) for approval. The district – level line departments and research units would also prepare seasonal or annual WPs to (1) maintain diagnostic and support services (e.g. soil testing laboratories), (2) organize in service training and technical support activities for FIAC and field level extension staff, (3) carry out research programs and (4) periodically up-date the district SREP.

VI. Farmer Advisory Committees (FACs) will be constituted for providing a formal feedback mechanism. It would be constituted representing all major stakeholders and farmer representatives of FOs within the block. The FAC would help set block extension priorities and recommend resource allocation across program areas. These committees would review and provide advice to each implementation unit at block level. The chairman of the FAC would be elected from the farmer representatives on rotation. FACs shall meet once in a month during the season and quarterly in lean season.

VII. Farmers Organizations (FOs) would be encouraged at village level and village level groups would, in turn, evolve into Commodity Associations (CAs), Marketing

Cooperatives and other types of FOs at the block and district level. At village level Farmer Interest Groups (FIGs) and Farmer Associations (FAs) will be effectively involved in the preparation of block action plans. These organizations will coordinate in organizing demonstrations, on-farm and adaptive trails and give feedback to the extension and research. Their representatives would be directly involved in the block-level FACs and also at Governing Board of ATMA. The GB of ATMA would select and utilize project funds to support one or more NGOs to assist different types of farmers in becoming organized into different types of FOs within the district.

Funding Mechanism

ATMA will have operational flexibility in use of project funding. They will be expected to adapt plan activities at the district level in consultation with the participating entries as necessary in response to unfolding events. The ATMA Management Committee will be authorized to release project funds onwards to the public / private partners in the agreed activities included in the framework of the district extension plan and will maintain separate accounts / sub accounts partner-wise and activity-wise. The accounts (audited by Chartered Accountants) and reimbursement claims will then be routed through the Nodal Cell for onward transmission to the GOI.

Operational Modalities: Planning and Financial Procedures. The FIAC team would prepare block action plans (BAPs) and budgets that would outline extension and farmer training activities to be undertaken during the coming season. These coordinated plans must address key constraints and opportunities outlined within the SREP if they are to be funded by ATMA. In addition, the Officer-In-Charge (OIC) would be responsible for coordinating these proposed block-level extension activities and for submitting these proposals to the FAC for review. After the FAC has approved these proposals, then they would be submitted to the ATMA. The OIC and the FAC chair from each block would jointly present these extension plans to the ATMA Management Committee prior to their submission to the ATMA GB for approval. In

case of programmatic disagreements between the AMC and the FIAC, then these issues would be resolved by the GB.

Once a block action plans (BAPs) have been approved by the GB, then the ATMA Project Director would forward a check to the OIC in each block to cover the budgeted cost of approved extension programs. The OIC would maintain a bank account and funds would be allocated to each FIAC member in implementing their approved program of extension activities. The OIC and chair of the FAC would sign all disbursement checks. The OIC would be responsible for maintaining complete financial records, including expenditure receipts, for approved extension activities. Also, the OIC would periodically submit detailed financial records to ATMA. The flow of funds to individual blocks would be suspended if financial and performance records are not submitted to ATMA in accordance with agreed upon procedures.

Operational Procedures: All FIAC team members would continue to be employed by their respective line departments, but they would function as a multi-disciplinary technology team or working group that would address the four main programmatic thrusts within the SREP in designing and implementing an integrated extension program. Village extension workers (VEWs) would have prime responsibility for day-to-day program implementation; with FIAC team members assisting with demonstration plots installation, teaching farmer-training courses, and conducting farm field days and other group activities. In large districts, agricultural officers (AOs) would supervise the day-to-day work of the VEWs, with technical supervision and support coming from the FIAC team. The goal of this proposed new arrangement is to create an integrated or ***single window*** extension system.

To the extent possible, developmental activities financed under central and state government schemes would be utilized to demonstrate and support extension and technology transfer activities within the district and block. In the long-term, the goal would be for more of these central, states, and district funds to be directly transferred

to the ATMA in support of SREP and BAPs implementation. In the short run, however, the FIAC, in consultation with the FAC, would determine where these development activities (especially for agriculture and horticulture) could be most effectively utilized in support of on-going block-level extension programs.

The key to effective program implementation would rest with the establishment of a FIAC team that would *ground* or fine-tune the extension program for specific agro-ecological zones (AEZs) within the block. It is also at the block level that farmer participation can be most effectively mobilized in the development of block action plans. It is also at this level where representatives of Self Help Groups (SHGs), Farmer Interest Groups (FIGs), and block-level Farmer Associations (FAs) can be directly involved in the block-level FAC.

How to Operationalize ATMA Governing Body (GB):

- If it is not formed, immediately persuasion shall be done for every formation
- PD shall take necessary steps to conduct first meeting of GB in which all Hon'ble GB members shall be briefed about ATMAs concept.
- Provision for TA of GB members shall be made for involvement of GB members
- All GB members shall be given copies of SREP-They shall be briefed about roles and responsibilities of Governing Board
- At the earliest exposure visit to nearest & successful ATMA
- FAC members shall be given opportunity to work as GB members for the 2nd term onwards
- GB members shall be conducted once in quarter or before also if the need arise.
- 15 Clear day notices shall be given before the meeting along with agenda
- All the expenditure of ATMA shall be approved by GB. PD shall present progress of the ATMA in the meeting
- GB is empowered to appoint CAG approved CA for auditing

How to Operationalise ATMA Management Committee (AMC):

- If it is not constituted, measures to be taken for its constitution
- Meeting shall be conducted every month
- 8 clear days prior intimation should be given
- While fixing the date care should be taken to fix the meeting on HQ day
- All line departments shall own the ATMA, to ensure this the following measures to be taken:
- Team spirit shall be infused
- It is better to conduct meetings on round table to make all members feel equal with Chairman i.e. P.D.
- It is also better to rotate the place of meeting to different line department offices so that all participating line departments may own the scheme
- In the first meeting of AMC, all members shall be oriented about ATMA concept and nature of work.
- PD should stress on the point the ATMAs work is not additional work, but ATMA will help them to perform their own department work efficiently and in a result-oriented manner in gap filling mode
- Each member shall be made in charge of a block / blocks and he should supervise its progress
- It is better to call BTT Conveners to AMC meetings to brief the AMC

How to Operationalise farm Information and Advisory Committee (FIAC)

- The location of FIAC is accessible to majority of the farmers
- If separate building / space is available with agriculture or any other line department, it is advisable to establish in that place
- If any good NGOs are there, they shall be requested to take up FIAC
- If any Farmers Association/Organization/Federation willing to run FIAC, they shall be given priority

- If no other option is there, FIAC may be run at the office of BTT Convener
- It is advisable to have the following facilities:
  - Telephone
  - Computer with internet connectivity
  - Facility to conduct meeting
  - Training hall is desirable
  - Minimum stationery
  - At least one technical person shall be available at FIAC
- Location of FIAC should be at such a place, where farmers frequently visit to Revenue / Agri. Office / Agri. Input Shop / Bus Stand / Panchayat office et

How to Operationalise Block Technology Teams (BTTs):

- All BTT members (from all blocks) shall be given orientation about ATMAs concept its functions etc.
- Monthly once the BTT shall meet
- Meeting shall be held at FIAC
- 7 clear days prior notice shall be given for the meeting along with agenda
- Date of meeting shall be fixed on HQ day or according to convenience of majority of the members. Care should be taken that all / majority of members of BTT attend the meeting
- Each member of BTT shall be given / provided with a copy of SREP
- BTT members shall be made to understand that ATMA's work is not additional work but ATMA will help them to implement their departmental work in a more efficient way in a gap filling mode
- All BTT members shall prepare Action Plan as per SREP. Action Plans of each department can be discussed in BTT meetings to see whether they are as per the

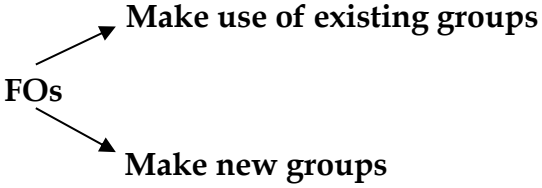
SREP or not. Care should be taken to add any urgently needed activity, though it is not indicated in SREP

- By mutual discussion BAP shall be finalized and put forth to FAC

How to operationalise Farmer Advisory Committee (FAC):

- Care should be taken to take only progressive / award winning farmers / farmer group leaders
- All FAC members shall be given with booklet of ATMA in local languages which consists of basic information of ATMA and roles and responsibilities of FAC
- All FAC members of all blocks should be given orientation about concept of ATMA at district level
- All FAC members shall be given abstract of SREP in the local language
- Monthly meeting of FAC shall be conducted at FIAC. In the meeting of FAC, BTT members also shall present.
- TA to FAC shall be given promptly on the day of the meeting
- They are given with responsibility of supervising the ATMA's activities in the block
- All FAC members shall be informed and invited to all trainings and workshops to win their confidence.
- All expenditure of FIAC and the block activities shall be approved by FIAC

How to Promote the Commodity Interest Groups in ATMA



Make use of existing groups

- BTT members should be asked to enlist, analyze the existing groups in their block. Each member shall be given with a group of villages.
- AMC members shall be given the responsibility to enlist analyze and do TNA of existing groups of their respective enterprise.
- NGOs shall also be given responsibility to enlist analyze of existing groups in their jurisdiction

New Groups:

- With the help of NGOs form new groups. Field level workers should be sensitized and should be briefed about the advantage of group formation
  - A module of advantages of group for farmers shall be developed
- A target of at least **one group** for each field level worker shall be given

Points to be remembered

- There can be 10-20 members in one group
- The members of the group may be from one village or two to three adjoining villages
- There should be at least one common interest of the group (commodity, marketing etc.)
- There shall be formal registration of the group with ATMA with a nominal registration fee.
- The application shall consist of Names and signatures of the members Address of the Chairman and other members. Name of the group & its location etc.
- At least monthly meeting shall be conducted

- The group shall be supported by one officer of their particular enterprise
- Group shall be supported by a basket of activities
- Training exposure visit, demo
- Credit support
- Seed money etc.
- If possible create a success story for easy replication.
- Quality shall be given more importance than quantity
- Group shall be homogeneous
- In each monthly meeting, they shall decide what would be date for next meeting and on what topics the group needs briefly.

Revised Guidelines for Extension Reforms Scheme (2010)

On the basis of experience gained during the implementation of the Extension Reforms scheme from 2005 to 2009 and after consulting the State Governments, the Government of India has revised the ongoing Centrally Sponsored Scheme "Support to State Extension Programmes for Extension Reforms" by modifying and strengthening the earlier Scheme. A detailed circular about the revised scheme was issued on 16.04.10 to enable the State Governments to finalise their Work Plan well in time.

Broad Features of the Scheme:

The pre-revised Scheme (which has been modified now with effect from April, 2010) benefited farmers through extension functionaries by imparting training and involving them in exposure visits, demonstrations, study tours, exhibitions etc. This entire gamut of extension related activities was broadly termed as ATMA Cafeteria. A new institutional arrangement in the form of ATMA at the district level was created for coordinating the extension activities. Similarly, the State Training Institutes popularly

known as SAMETIs were entrusted with the task of training of extension functionaries at the State level. However, in the absence of dedicated manpower and infrastructure at SAMETI & ATMA level, the extension delivery mechanism could not function efficiently. The focus had been more on implementation of activities rather than systemic reforms viz. bottom up planning, multiagency extension strategy, gender mainstreaming, coverage of allied sectors & convergence. The formal extension mechanism below the Block level was mainly through Farm Schools. Though Farm Schools have been an effective mode of ensuring farmer-to-farmer extension, their outreach has been limited. Moreover, due weightage to size of the States in terms of number of Blocks was not given in the pre-revised Scheme.

The Revised Scheme provides for dedicated specialist and functionary support to take up training and extension initiatives at State, District and Block level. Besides this, improvement in extension outreach right down to the village level is expected to be achieved through Farmer Friend. Infrastructure and manpower support to SAMETIs will give a boost to the HRD and capacity building of extension functionaries. The cost norms of selected ongoing activities have also been revised and some new need-based activities have been introduced under ATMA Cafeteria, 2010.

Objectives:

The Revised Scheme shall focus on the following key extension reforms as objectives of the Scheme:

- Providing innovative, restructured and autonomous institutions at the state/district/ block level.
- Encouraging multi-agency extension strategies involving Public/ Private Extension Service Providers.
- Ensuring an integrated, broad-based extension delivery mechanism consistent with farming system approach.
- Adopting group approach to extension in line with the identified needs and requirements of the farmers in the form of CIGs & FIGs;

- Facilitating convergence of programmes in planning, execution and implementation.
- Addressing gender concerns by mobilizing farm women into groups and providing training to them.
- Moving towards sustainability of extension services through beneficiary contribution.

The above objectives shall be met through strengthened institutional arrangements, dedicated manpower and revamped strategy as described below.

Strategy:

The Revised Scheme will be implemented through the institutional mechanism as detailed below:

State Level:

1. The State Level Sanctioning Committee (SLSC) set up under Rashtriya Krishi Vikas Yojana (RKVY) is the apex body to approve State Extension Work Plan (SEWP) which will form a part of the State Agriculture Plan (SAP).
2. The SLSC will be supported by the Inter Departmental Working Group (IDWG). IDWG is responsible for day-to-day coordination and management of the Scheme activities within the State.
3. The State Nodal Cell (SNC) consisting of the State Nodal Officer and the State Coordinator (along with supporting staff) will ensure timely receipt of District Agriculture Action Plans (DAAPs), formulation of State Extension Work Plan (SEWP) duly incorporating Farmers' feedback obtained through State Farmer Advisory Committee and its approval by the SLSC. The SNC will then convey the approval and monitor implementation of these work plans by SAMETIs and ATMAs. The SAMETIs will draw-up and execute an Annual Training Calendar for capacity building of the Extension functionaries in the State. While doing so, the

SAMETI will check duplication and overlapping of training content, training schedule as well as trainees.

District Level:

ATMA is an autonomous institution set up at district level to ensure delivery of extension services to farmers. ATMA Governing Board is the apex body of ATMA which provides overall policy direction. ATMA GB will be assisted by the District ATMA Cell comprising PD ATMA, Dy. PDs and Staff in the discharge of its functions. ATMA Management Committee is the executive body looking after implementation of the scheme. District Farmers Advisory Committee is a body to provide farmer's feedback for district level planning and implementation. With dedicated staff provided for the ATMA, it will continue to be the district level nodal agency responsible for overall management of agriculture extension system within the district, including preparation of Strategic Research and Extension Plan (SREP). The process flow for formulating Action Plans has been described in para 1.4.7.

Block Level:

At the Block level, two bodies viz. Block Technology Team (BTT) (a team comprising officers of agriculture and all line departments within the block) and Block Farmers Advisory Committee (BFAC) (a group exclusively consisting of farmers of the block) shall continue to function jointly (with the latter providing farmers' feedback and input). BFACs shall represent Farmer Interest Groups (FIGs) / FOs existing within the block on rotation basis to advise the BTT. The Block ATMA Cell consisting of these two bodies, Block Technology Manager and Subject Matter Specialists will provide extension support within the Block, through preparation and execution of Block Action Plans (BAPs).

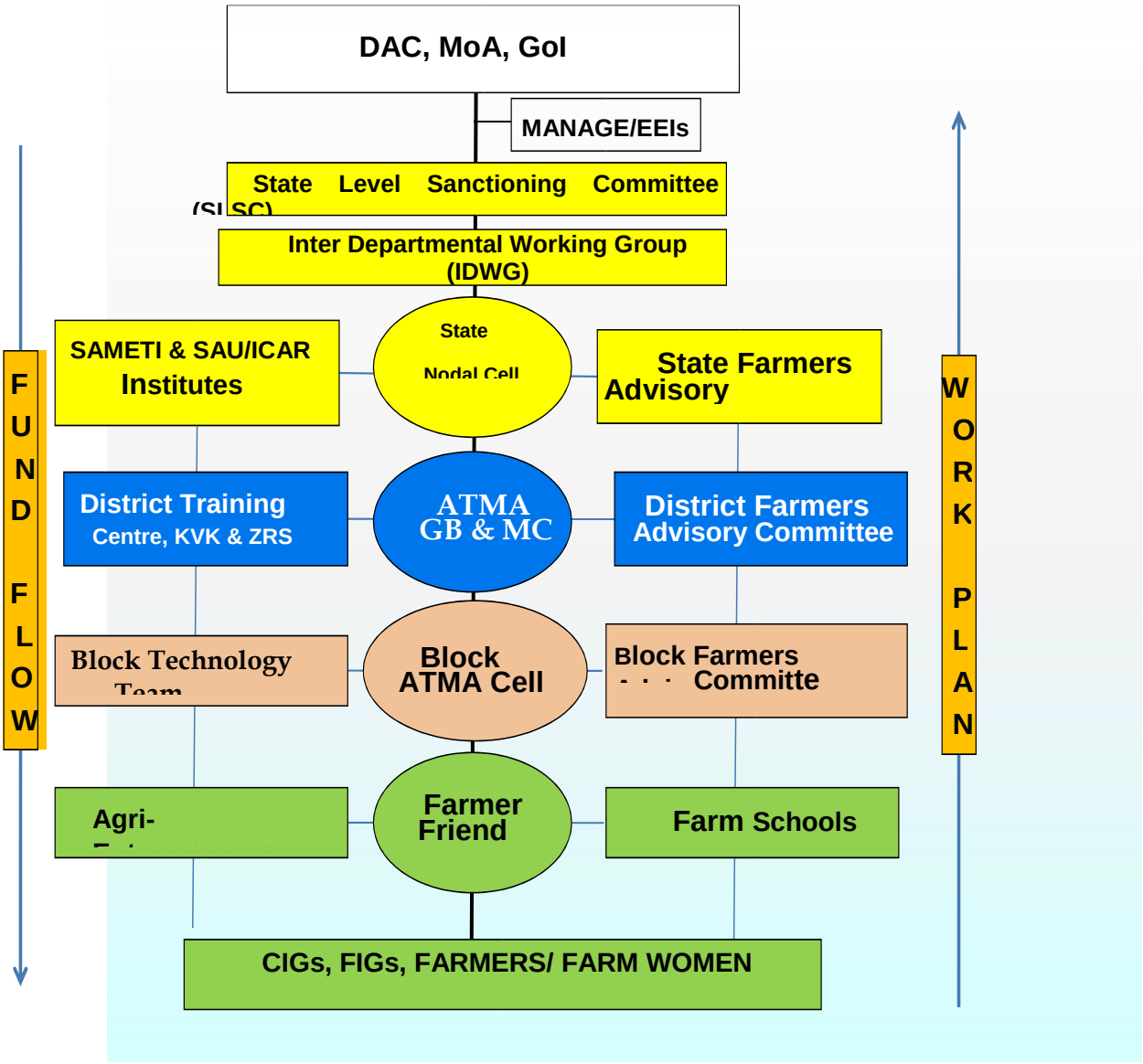
Village Level:

1. The Farmer Friend (FF) will serve as a vital link between extension system and farmers at village level (one for every two villages). The FF will be available in the

village to advice on agriculture and allied activities. The FF will mobilize farmers' groups and facilitate dissemination of information to such groups, individual farmers and farm women directly through one to one interaction individually or in groups and also by accessing information / services on behalf of farmers as per need through Common Service Centres (CSC) / Kisan Call Centres (KCC).

2. Wherever available under their respective Schemes, Agri-entrepreneurs will supplement the efforts of extension functionaries by making quality inputs available to the farmers and by providing them critical technical advice.
3. Farm Schools will serve as a mechanism for farmer-farmer extension at 3 to 5 focal points in every Block.

Fig 4 Organizational structure at various levels



Participatory Bodies:

The following participatory bodies shall be set up at various levels in the State.

- State Level: Inter- Departmental Working Group (IDWG)
- SAMETI Executive Committee
- State Farmers Advisory Committee (SFAC)
- District Level: ATMA Governing Board
- ATMA Management Committee
- District Farmers Advisory Committee (DFAC)

- Block Level: Block Technology Team (BTT)
- Block Farmers Advisory Committee (BFAC)

Process Flow for Action Plans: SREP is a comprehensive document identifying research/ extension priorities for district, keeping in mind agro-ecological conditions and existing gaps in technology generation and dissemination in all agriculture and allied sector areas/ activities. SREPs will be prepared for new districts in coordination with the line departments, Krishi Vigyan Kendras (KVKs), Panchayati Raj Institutions (PRIs), Private Sector, farmers and other stake-holders at the district level.

- These SREPs shall be revisited after every five years to accommodate newly identified gaps and emerging areas of importance.
- SREPs will form the basis for formulation of Block Action Plans (BAPs) on an annual basis. Block Action Plans are then consolidated at the District level to prepare the District Agriculture Action Plans (DAAPs).
- District Plans are worked out in such a manner that these serve as subset of the Comprehensive District Agriculture Plans (CDAP) prepared for the District under (Rashtriya Krishi Vikas Yojana (RKVY).
- The DAAPs will be consolidated in the form of State Extension Work Plan (SEWP) which then forms a part of State Agriculture Plan (SAP).

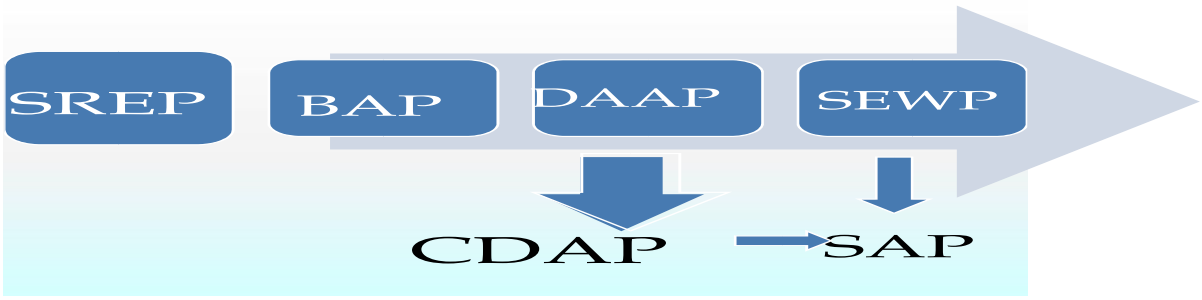


Fig.1.1 State Agriculture Plan

Components of the Scheme:

The Revised Scheme has two sub-sets of activities:

i. Specialist and Functionary Support at various levels which has to be necessarily put in place over the years as per the approved phasing and availability of funds. However, in the case of States which are already having the same/higher numbers of dedicated extension functionaries possessing similar qualifications & experience as approved under the Scheme and detailed at Annexure-II (a) and Annexure III (b), the required number of persons will get reduced accordingly. Specialist and functionary support could be availed at State, District, Block and Village level to an overall extent of 50% during 2010-11, subject to availability of funds with the States. Within this ceiling of 50%, the States may evolve their own priorities for filling up these posts at various levels. Increasingly higher percentage targets for manpower (out of the total numbers given in the next chapter) will be earmarked for subsequent year(s).

ii. Cafeteria of Activities: Besides the essential component of dedicated manpower, a Cafeteria of Activities has been prepared. The States may choose locally suitable activities from the Cafeteria. Keeping in view the availability of funds, the expenditure has to be optimized to support a limited percentage of activities out of the Cafeteria to be performed in a given year. This gives requisite flexibility to the States to prioritize their activities.

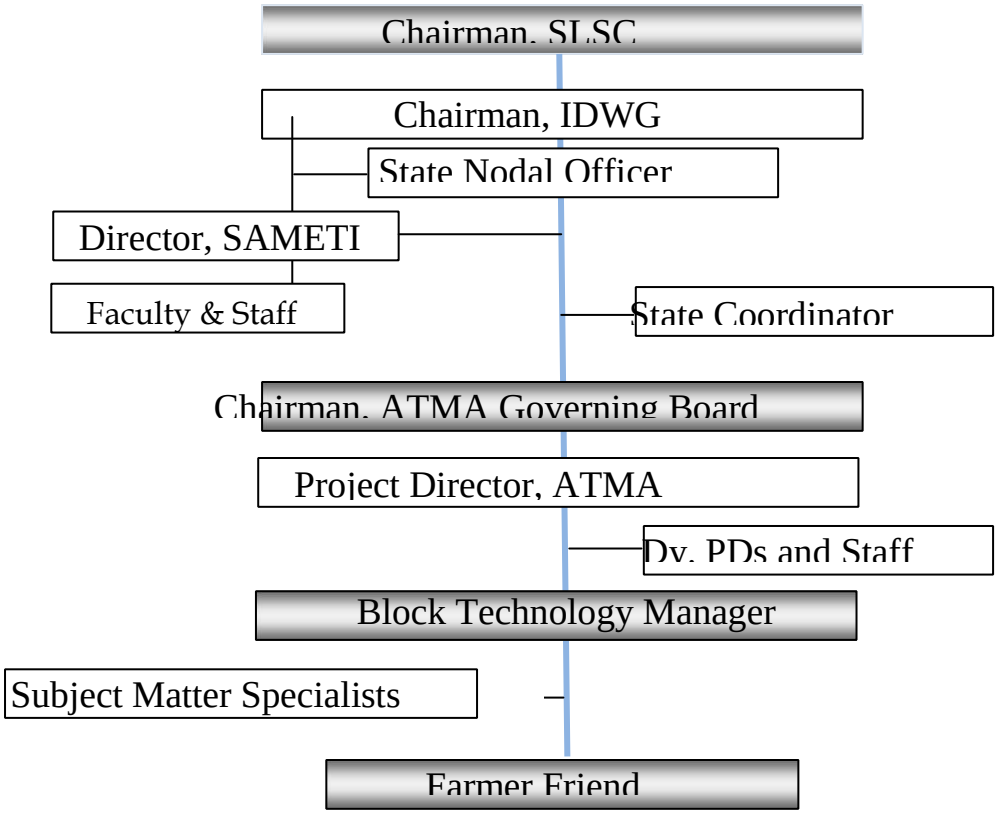
iii. Specialist &Functionary Support:

Strengthening of Extension Related Manpower:

Strengthening of extension related man power is proposed at three levels viz. State, District and Block level. The hierarchical structure of officials under Revised ATMA Scheme is as follows:

(Roles and responsibilities of extension related manpower provided under this Scheme, statement showing specialist and functionary support approved for various levels, details of staff/ posts at each level, mode of recruitment, proposed emoluments and suggested qualifications are given in the Annexures of Revised Guidelines for

Extension Reforms which is on the Website of Ministry of Agriculture & Farmers Welfare agricoop@nic.in).



State Level:

I. State Nodal Cell: The State Nodal Cell will consist of State Nodal Officer, State Coordinator and supporting staff. The State Nodal Officer (SNO) shall be designated by the State Government, which will also provide requisite ministerial support. In order to carry out State level activities, as specified in ATMA cafeteria, and to ensure convergence with various departments at State level and to assist the State Nodal Officer (i.e. Director / Commissioner of Agriculture or equivalent) in overall management of agricultural extension system within the State, one State Coordinator has been approved for each State/ Union Territory. The State

Coordinator is to be engaged on contract basis under this Scheme. The State Coordinator will function under the overall supervision of State Nodal Officer.

II. **SAMETI:** In order to ensure regular training and skill up- gradation of State and District / Block level extension functionaries and for reaching out to the grass root level extension functionaries and farmers through field visits, the following manpower is provided for SAMETI in each State. The Director, SAMETI shall work under the overall guidance of the State Nodal Officer identified under ATMA scheme. However, in cases where the State Nodal Officer is not an officer of equivalent or higher rank than Director, SAMETI, and the Director SAMETI may work under the overall guidance of the officer under whom State Nodal Officer is placed. The Faculty Members (Deputy Directors) of SAMETI shall report to Director SAMETI.

The overall staff position at State level is given below.

Posts No. of Blocks	State HQ.	SAMETI				Total Staff
	State Coordinator	Director	Dy. Director	Accountant/ Clerk	Computer Programmer	
< 100	1	1	4	1	1	8
100 – 400	1	1	8	1	1	12
> 400	1	1	12	1	1	16

District level:

Each ATMA Unit consisting of the following core staff of five persons, under the overall supervision of PD, ATMA, will be responsible for management of agricultural extension services within the District including holding of regular meetings of ATMA Management Committee (MC) and ATMA Governing Board:

I. Project Director – 1;

II. Deputy Project Directors -2

III. Accountant-cum-Establishment Clerk – 1;

IV. Computer Programmer/Operator–1. The Project Director ATMA shall report to the Chairman, ATMA GB and the two Deputy PDs would work under the administrative control of PD, ATMA. The PD, ATMA shall also function as Chairman of ATMA Management Committee.

Block Level:

One Block Technology Manager (BTM) is being provided under this Scheme in each Block to co-ordinate the ATMA related activities of the BTT and FAC. BTM will work under the overall supervision of the BTT Convener for all ATMA related activities. The BTM will perform the following functions:

- Assist the BTT in preparation and implementation of Block Action Plans;
- Operationalization of Farm Schools (key activity to promote farmer-to-farmer extension);
- Organization of and technical interaction with Farmers' Interest Groups & Commodity Interest Groups (organization of farmers around a particular commodity); and
- Maintain an inventory of all FIGs / FOs within the Block. Besides this, BTM will also assist the BTT in carrying out its functions.

  Two Agriculture Technology Manager (ATMs) are to be placed in each Block exclusively for delivery of extension services in agriculture and allied sectors as per priority areas for various Blocks.

- The areas of expertise of these ATMs will be decided based on priorities for various Blocks. These ATMs shall be provided requisite connectivity and mobility to perform the following functions.

- Through the Block level officers of the Agriculture and allied departments and Block Technology Manager, these ATMs will provide necessary inputs to Common Service Centres and Kisan Call Centres.
- With the technical support from the BTM, they are also expected to provide requisite technical and knowledge support to Farm Schools, Farmer Friends, farmers' groups and farmers in general.

The BTM and ATMs at Block Level will be engaged by Project Director (PD), ATMA on contract basis through a mechanism identified by the States. While the ATMs will remain under the administrative control of BTM, the BTM will work under administrative control of PD, ATMA. However, some States may prefer to link the BTM & ATMs with PD, ATMA through the Block Development Officer (BDO), if activities of agriculture and allied departments are already being coordinated by the BDO at Block level.

Note: For further information on Cafeteria of Activities and other clarifications read the Revised Guidelines for Extension Reforms- on the Ministry of Agriculture & Farmers Welfare website agricoop@nic.in

1.6 LET'S SUM UP

We have learnt that the changes have been brought in the institutional and operational process to strengthen the public extension system. If the concept of ATMA is implemented in true spirit it will facilitate the decentralize decision – making to the district level and increase farmer input into programme planning and resource allocation, especially at the block level, and increase accountability to stakeholders. It helps for coordination and integration, so that the programme thrusts such as Farming System Innovations, Farmer Organizations, Technology gaps and Natural Resource Management can be more effectively and efficiently implemented.

1.7 CHECK YOUR PROGRESS

1. What is ATMA and explain the salient features of ATMA?
2. Mention key functions of Management committee.
3. How do you to promote the commodity interest groups in ATMA?
4. Explain about the revised guidelines for extension reforms.
5. Explain the strengths of T&V systems and constrains.

1.8. SUGGESTED READINGS/ REFERENCES:

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UNIT-2

STRATEGIC RESEARCH AND EXTENSION PLAN (SREP)

Highlights of the Unit

- Objectives
- Introduction
- Strategic Research and Extension Plan (SREP)
- Strategic planning? Scope, Concerns and Need of strategic planning
- SREP and Operationalization
- Steps in Developing Marketing Plan
- Let's sum Up
- Check your progress
- Suggested readings/ references

2.0. OBJECTIVES

After going through this unit, learners will be able to

- Understand the need and importance of Strategic Research and Extension Plan (SREP)
- Learn the steps and process of developing the SREP
- Operationalize SREP

2.1. INTRODUCTION

Agricultural Technology Management Agency (ATMA) is mandated to develop a demand driven, situation specific, multi-actor oriented Strategic Research and Extension Plan (SREP) to accelerate agricultural development in the district. The SREP is the process of identifying research and extension gaps in

agriculture and allied sectors. It suggests an appropriate strategic plan for agricultural development of the district.

2.2. STRATEGIC RESEARCH AND EXTENSION PLAN (SREP)

During the last decade a number of management tools have been developed which are helpful in facilitating stakeholder's involvement in an effective manner. Based upon these tools, a participatory methodology has been worked out for preparing SREP at the district level.

The ultimate objective of both research and extension system is to increase agricultural production. Formulating extension and research agenda based on producers' requirement results in technology that will be more acceptable to users. This also helps in allocation of resources to both extension and research activities to be taken up in the district. Therefore, the Strategic Research and Extension Plan (SREP) for each district is the need of the hour to address specific problems of the farming community, especially resource poor and other disadvantaged groups.

2.3 WHAT IS STRATEGIC PLANNING?

Strategic planning is a management task concerned with the growth and future of an organization. Its job is to ensure that the organization keeps moving in the right direction.

The following are some of the characteristics of strategic planning:

- A process in which the stakeholders of an organization (and others they invite to be associated to) join in strategic thinking and acting to create the best fit between the organization and its environment
- It is planning from outside in and from inside out.
- It gives detailed attention to strengths, weaknesses, opportunities and threats

(SWOT) in terms of the organization, its mission, its vision and its environment

- It has to agree to the mission of the organization

- It should be in harmony with the organization's vision that is carefully developed and shared by the stakeholders
- Hopefully, it yields a strategic and implementable plan that constitutes the best fit between the external environment and internal capabilities.

In brief, strategic planning is

- What is intended to be achieved in future?
- How to get there?

It involves fundamental choices about

- Organization's mission or goal to pursue,
- Programme and services to offer to accomplish the goals
- How to mobilize and utilize the needed resources, people, money, expertise and facilities etc.

2.4 WHY STRATEGIC PLANNING?

Strategic planning

- Serves as a road map for the organization
- Lends a framework for systematic handling of operational decisions
- Lays down growth objectives of the organization and also provides strategies needed for achieving them
- Ensures the organization remains a prepared organization
- Ensures that the organization takes care of needs of the stakeholders
- Ensures best utilization of the organizations' resources
- Serves as a coping mechanism against uncertainty arising from environmental change
- Helps the organization to understand trends in advance and provides the benefit of a lead-time for taking crucial decisions and actions.

- Helps avoid haphazard response to environment
- Provides the best possible fit between the organization and the external environment.
- Helps build competitive advantages and core competencies
- Draws from both intuition and logic
- Prepares the organization to not only face the future, but even shape the future in its favour

2.5 SCOPE OF STRATEGIC PLANNING

- To be strategically alert
- To be future oriented
- To be able to take risks in tapping opportunities
- To be insulated against environmental threats
- To develop the competence for assimilating changes faster
- To respond effectively and more economically
- To bring convergence
- To be able to generate large resources
- To gain expertise in technology, extension and market support systems

2.6 CONCERNS OF STRATEGIC PLANNING

- Future — long-term dynamics is its concern; not day-today task
- Growth - direction, extent, pace and timing of growth
- Environment - the fit between the organization and its environment
- Strategy — strategy is its concern; not the operational activities
- Integration — integration is its concern; not a particular function
- Creating core competencies *I* competitive advantages creating long-term, sustainable, organizational capacity is its concern

2.7 NEED FOR STRATEGIC PLANNING IN AGRICULTURAL DEVELOPMENT

The present mechanism of planning and implementation of agriculture and allied development programmes is centralized in nature. This top down approach focuses on individual commodities / enterprises rather than on a holistic / integrated approach. It is ad-hoc in nature and does not involve all actors. The farmers are considered as receivers of benefits rather than as responsible partners who can influence the production process. To address the aforementioned issues, under "Extension Reforms Scheme", ATMA of each district is required to develop a Strategic Research and Extension Plan (SREP) by involving all stakeholders.

The development and use of SREP would help in the following aspects:

- Get an overview of the prevailing scenario in the district
- Explore and understand the problems and opportunities in different farming systems, preference and priorities of the farming community
- Facilitate long-term visioning and strategic planning for agricultural development in the district in a concerted manner
- Facilitate involvement of all actors at different levels in the development process and, in the long run, share the load on the public extension system
- Facilitate integration of and redesigning the on-going developmental programmes for the benefit of the farmers
- Development of annual action plans for each block in respect of the prevailing Agro-Ecological Situation
- Develop farmer centred, market oriented, extension-research management system

2.8 THE CONTENTS OF SREP

The extension and research interventions would differ across the Agro-Ecological Zone (AEZ) as per prevailing Agro-Ecological Situations (AESs) between crops,

livestock, and farming systems as affected by roads, markets, input supply outlets, service facilities, and between farm households as a reflection of their resource endowment and socio-economic status.

Therefore, in formulating a SREP, the following guiding principles should be kept in view:

- Identify and build on important farming system innovations or success stories that may intensify or diversify existing farming systems and, thereby, increase farm household income
- Increase farmers access to markets, technologies and, resources through farmers' groups and organizations
- On-farm collaborative technology development, testing and refinement to address serious technological gaps in the existing farming systems
- Promote appropriate natural resource management (NRM) plan for building and maintaining the sustainable production systems within each AES.

The SREP will have two sections; and each section will have two subsections as under:

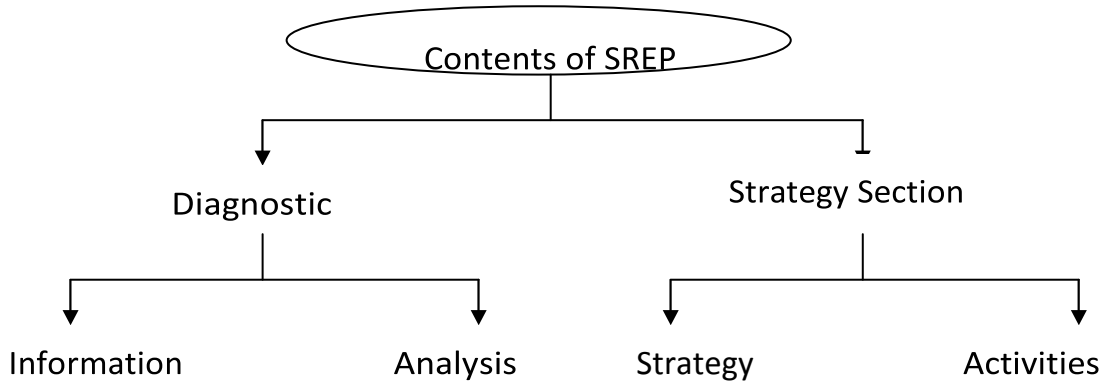

Fig 2.1 Contents of SREP

Diagnostic Section:

Information sub-section (For the District)

- **General features:** Geographical area, number of sub-divisions, blocks, gram panchayat, villages etc. in the district. It may be supported with a map showing the boundaries of blocks with major cities, towns, roads, railway lines etc. River streams maps, floods, droughts, Natural calamities-Frequency & periodicity of occurrence (Source- Dist. Statistical Hand Book, Bureau of Econ. & Statistics)
- **Agro-climatic information:** Rainfall (quantity and distribution pattern), temperature and relative humidity etc. (Source- Dist. Office)
- **Agro-ecological situations**: Agro-eco Zones, Agro-ecological situations, features, area and percentage with maps, Weather information related to crop production, (Source- SAU , NBSS & LUP, Nagpur)
- **Demographic data**: Population of male, female and children, breakup of caste, literacy, age groups, Total No. of households, Farm size based classification into Landless; Marginal; small; Medium; Large, (Source – Dist Statistical Officer, Line Depts., Revenue records and Census)
- **Information on land based systems**: Agricultural, Horticultural, Fisheries, Animal resources etc. in respect of area, production, productivity, seed, farm mechanization, fertilizer consumption trends etc. Post-harvest losses, Organic manures used, Organic produce, medicinal and Aromatic Minor Forest Produce etc. in the district. (Source- Dist. Offices, SAU's, Other Institutions)
- **Infrastructure Facilities**: Physical resources like offices, farms, factories, nurseries, veterinary hospitals, research stations, training institutes , staffing pattern with qualification and major roles, Soil testing labs, Aqua culture labs, Diagnostic labs, hatcheries, IPM – Service Providers, Agri- clinics & agro-service centres, Soil Health and Water quality, food products and quality control labs etc. (Source- Dist. Offices, SAU's, Other Institutions)

Land (Soil/ Water/ Vegetation):

Soil: 1.Extent and severity of soil erosion (Mild/ severe/ very severe); 2. Problem Soils (Extent & Severity): Saline / Alkaline / Sodic soils; Diara land; Tal land; Affected by meandering rivers; 3. Current Fallows – Time series data & reasons for the area remaining fallow; 4. Permanent Fallows (Source: Revenue Records, or Bureau of Economic Statistics); 5. Soil Types (Texture, structure & depth): Sandy, Sandy loam, Loamy sands, Loams, Clay loam, Clay.

Water: Exploitation of Ground Water, Time series data (Open well / Bore wells, number of tube-wells and its irrigation potential), Present Status of surface water bodies (Tanks / Ponds) and area under their command, present status of catchments and the water body – conversion of tanks to percolation tanks, if any., Back waters where ever applicable, Assured water supply periods and other sources of irrigations. (Source: Ground water Department and M I Departments).

Vegetation: Area under private land use – Public land use (Time series data), Crops and cropping systems including diversification in private land, Grass lands, multipurpose trees and bio-mass production, Area under Forest (Protected or reserved – Open Forest) (Source: Agriculture Department, Horticulture and Forest Department).

Rainfed Areas: Length of growing period, assured moisture availability period (Source: SAU's)

Irrigated area: All Irrigation sources, area and percentage under each category (block wise / AES wise), sources of irrigation with area and percentage in respect of each source (block wise / AES wise) (with separate maps), irrigation projects nearing completion. Quality of Irrigation water (Salt, Nitrate, Magnesium, Fluoride, Arsenic etc.,), Period of assured irrigation through ground water and surface water, Canal water – Potential created and actual irrigated area (Source: Ground Water, M I & Irrigation Departments, Dist. Offices)

On-going developmental programmes: Extension and Research activities of different line departments, ZRSs, KVKs and DRDAs etc. with scheme-wise breakup of funds for extension & research development works.

Funding: Total requirements, Funds allotted, Gap / shortfall; Constraints as perceived by ground level workers (Source-Dist. Offices)

Information on markets: Local, panchayat, block, district, regional and national markets that serve the district in respect of crops, fruits and vegetables, livestock and livestock products sericulture and fisheries etc. along with quantity of commodities handled, Position of *Shandys* and quantities and qualities of commodities handled

- Contract farming: Present contracts existing in the district and their analysis (Source-Dist. Offices)
- **Agro-Processing facilities :** Packing materials, present status and alternatives, Types of Processing Units (Mini Dal Mills, Mini Flour Mills, Mini Rice Mills, Pulp & Plank Mills, aromatic extraction plants etc., Raw material availability for processing industry (Source: Dist. Industry Office)

  Agro – processing facilities inside and outside the district that caters to the product of the district (number, location, capacity built-in and utilised etc) in respect of each commodity (Source- Dist. Offices)
- **Agri-credit:** Agricultural credit from banks, cooperatives, informal credit sources etc., with break up and volume, accessibility to farm households from different resource and socio-economic groups. SHG's: Micro credit, KCC and Gold card Holders, on farm water Management, Defaulter Status, Details of Crop Insurance, Number of farmers availing institutional credit and number of farmers not availing institutional credit. Number of farmers not availing any credit (Sources - Dist. Offices, Lead Bank).

- **Marketing infrastructure:** Storage, cold chains, pack houses, grading etc. commodity wise, with number, location, capacity, tariff etc.

  (Source- Dist. Offices)

- **Input and service facilities:** Available inside and also outside the district that cater to the needs of the district, in respect of different land based enterprises, Custom hiring, Input service providers (Institutional and individual), services of Kisan Mitra & Gopal & any other para-technical services. (Source- Dist. Offices)

- **Farmers' Groups and Organizations**- Number, purpose, structure, activities undertaken, membership (norms and type), linkages with other organizations, sources of income, Water User Association, SHG's, UG's, CIG's, RMG groups (Male / Female & Mixed) Shepherds,, CBAs (Cattle Breeders Assoc.) sponsored by BAIF Dairy Co-operatives, PACS, LAMPS Recognized NGO's as service providers. (Source- Dist. Offices)

- **Private sector organizations and NGOs:** Private sector organizations and nongovernmental organizations engaged in development, extension and research activities in respect of various land based enterprises, with nature of activity, spread target groups, membership etc. (Source- Dist. Offices)

- **Information and Communication Technology:** Computer, TV and Radio stations, telecommunication and Internet facilities etc. Print media, (News Papers, Magazines, Bulletin and Handouts**)**.

Information from Representative villages

- **Geographical Area:** Cultivable area, Land under cultivation, Rainfed area, Area under forest, Pasture, Current fallows, Degraded lands, Saline and problematic lands, Common lands, etc. in hectares.

- **Population:** Male, Female, Children, Literacy, percentage of Male and Female, number of households, number of farm families, number of landless, Shepherds, artisans etc.

- **Rainfed and Irrigated Area:** Area and percentage under each category, sources of irrigation with area and percentage in respect of each source; Well irrigation (ha); Tube wells (ha); Lift Irrigation (ha), Tank Irrigation (ha), Canal Irrigation (ha), River irrigation (ha) and Jaal lands, irrigation project near completion and potential area covered, etc.
- **Number of Farm Households:** Size – Small, Marginal, Large, landless, Different farming systems, Components (Enterprises) of farming systems, Cropping pattern (Irrigated and Rainfed), Cropping intensity (Irrigated and Rainfed) Crop wise area production, productivity
- **Land and soil:** Land utilization statistics (area and percentage) soils, their problems and their distribution with maps. (Source- PRA to be done)
- **Farming Systems**: Characteristics of the farming community resource situations (operational holdings, farm machinery, draft power, family labour, income, etc. Predominant existing Farming Systems (with combination of enterprises), profit generated from each enterprise (Source- PRA to be done)
- **Agro – Processing Facilities:** Facilities inside and outside the village that caters to the produce of the village (number, location, capacity built-in and utilized etc.) in respect of each commodity. (Source-PRA to be done)
- **Information on markets:** local, panchayat, block, district, regional and national markets that serve the village in respect of crops, fruits and vegetables, livestock and livestock products sericulture and fisheries etc. along with quantity of commodities handled.
- **Storage facilities:** Commodity wise, with number, location, capacity, tariff etc., available in the village or nearby, that serve the village.

- **Agricultural credit:** From banks, cooperatives, informal credit sources etc. with break up and volume, accessibility to farm households from different resource and socio-economic groups.
- **Input and Service Facilities:** Facilities available inside and also outside the village that cater to the needs of the village, in respect of different land based enterprises. Custom hiring, input providers, services of Kisan Mitra and Gopal, para-technical services. (Source-PRA)
- **Farmers' groups and organizations:** Number, purpose, structure, activities undertaken, membership (norms and type), linkages with other organizations, sources of income etc.
- **Private sector organizations and non-governmental organization:** Organizations engaged in development, extension and research activities in respect of various land based enterprises, with nature of activity, spread target groups, membership etc.

Strategy Section

Each identified existing Farming System needs to be analyzed in terms of its interaction with other options of farming systems. The core entity operating the Farming System is the farmer and his family. Farming Systems have evolved over a period of time through a process of farm level experimentation.

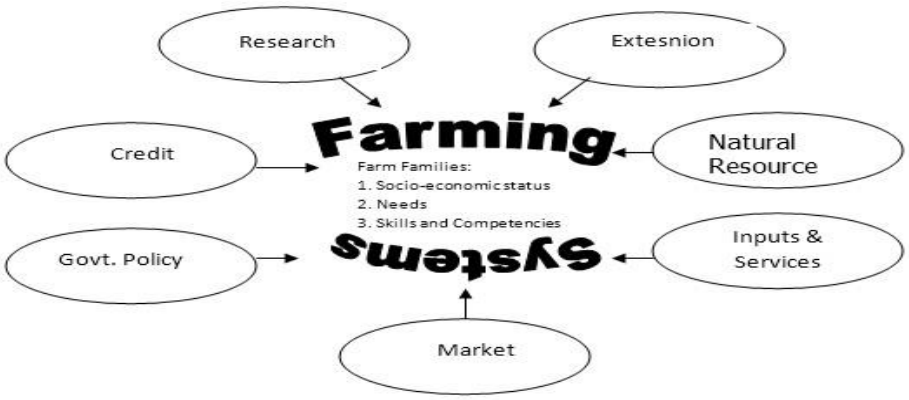

Fig 2.2 Farming Systems strategy Approach

Analysis of existing farming systems and enterprises:

This covers pattern of ownership, development, and utilization of land and water resources under different farming systems over a period of time under each AES including INM and IPM practices recommended and adopted. This exercise is carried out by the multi-disciplinary team of officers from line departments, scientists from ZRS and KVK in the district (preferably an economist in the team) supported by a trainer.

The influence of resource situations on the existing farming systems:

Thereafter it is necessary to analyze the major existing farming systems under different AES in terms of its productivity and income. Gaps in adoption of improved production technologies vis-à-vis the recommendation in respect of different farming situations of crop/commodity in each enterprise, inter-dependence of different enterprises under varying farming system and resource availability.

It is also, necessary to analyze the on-going research activities in the project district and the past recommendations from the research stations in the light of needs generated for research and the gaps in adoption identified through earlier analysis. The steps for analysing are as follows:

Steps for analysis of existing farming system:

a) Identify the predominant Farming Systems existing (for resource poor and resource rich) in each AES and carry out economic analysis of different existing farming systems (cost benefit ratio)

b) Look for an innovative farming system introduced by any individual farmer in the AES (Success Stories)

c) Look for a farming system recommended and introduced by ZRS or SAU's, and other research Institutions in the AES

d) Work out the new opportunities and missing enterprises in each of the existing farming system (System has to be re-looked for its diversification or intensification to increase overall returns by optimum use of available resources. ** (SWOT-analysis)

e) Presenting Basket of Options and take the consent and opinion for its implementation. Use matrix ranking to identify the best fit option for AES

f) The Comparison of the existing farming system vis-a–vis the suggested farming system will provide the gaps and the strategies to be planned.

** ***SWOC analysis: (Strengths, Weaknesses, Opportunities, Challenges)***

SWOC analysis is carried out in respect of different Farming Systems, as observed in each AES. SWOC analysis is very useful tool in developing strategies as it helps in identification of -

- Current strengths within existing farming systems and success stories,
- Weaknesses within the existing farming systems,
- Opportunities, which are advantageous for optimal exploitation of the existing farming systems in terms of providing, scope for new market opportunities, new technologies, services etc.
- Real potential threats to the natural resource base, existing farming systems and markets etc.

The identified issues and also the findings of SWOC analysis are to be shared with the farmers to prioritize the issues with commonality of understanding.

Steps for analysis of existing farming situations for each crop / commodity:

- Identify different Farming situations in which a crop or commodity is grown under each enterprise (Based upon factors like time of sowing, previous crop, source of irrigation, problematic soils etc.).
- Identify the existing practices (production practices) followed by the farmers

- Collect the recommended practices given by the SAU's or any other research institutions
- Identify the gaps by comparing the existing practices followed by the farmers with recommended practices
- Re-synthesized the technological package with the help of the scientists in the team to refine or modify the recommendations and assess the extent of gap in adoption
- Assess the reasons for Gap in adoptions by probing the farmers and on the basis of reasons for gap in adoption in the production system the strategic issues are identified.

Strategy Formulation:

Strategy sub-section: This section spells out strategies for research and extension for each AES in respect of different program components.

In this sub-section strategies would be developed on the basis of prioritized strategic issues, separately for extension and research. This exercise is to be carried out by the team constituted of line departments, KVK and ZRS scientists in the district along with an economist supported by the trainers. Generally speaking, strategies would be developed on the following categories.

Categories of strategy:

I. Diversification and intensification of existing farming systems
II. Improvement of productivity / income from different enterprises / commodities in exiting farming systems (Sustainability of natural resources and enabling the farming community (male and female) to command the extension system is to be built into these components)
III. Sustainability of the production system
IV. Capacity building of Extensionists, researchers, farmers, market players and other partners like NGOs, etc. v. Dovetailing and re-designing of various ongoing

schemes of agriculture and other line departments and research institutions in the public, private and NGO sector.vi. Market led extension for enhancement of profits with focus on post-harvest technologies and value addition

V. Promotion and use of f ICT in extension
VI. Promotion of Public Private Partnership,
VII. Mainstreaming Gender concern (Empowerment),
VIII. Any other program component considered necessary for the project / area.

Activity Sub-section:

The strategies can be helpful in achieving the goal / objectives of the project only when translated into action. Therefore, it is necessary to spell out different activities under each category of the respective program component. While describing the activities it is desirable to describe the unit and unit cost of each activity and also total number of units (with total cost) that may be necessary to achieve desired results. Subsequently, block level annual action plan has to be prepared by the block technical teams for each AES prevailing in any block basing on activity schedule.

Care should be taken to see that the normal on going type of activities are not undertaken as part of the Block Action Plans under NATP. Rather innovative activities in line with objectives of NATP should form the schedule of activities.

2.9 How to Develop SREP

SREP is to be demand driven while it is in consonance with the prevailing Agro-ecological, socio-economic situations and also the developmental goals of various government departments. This is developed with a bottom-up approach. While it gives importance to the main clients i.e. the farming community, it does consider the views of the other stakeholders in the agricultural development scenario. Hence, the methodology for developing SREP for any NATP district is different from the method presently in vogue in different line departments of the government in formulating plans and strategies for their activities. The steps for developing SREP are outlined here under:

Steps in Developing SREP

STEP – I - Orientation of District Team

STEP – II - Identification of Agro-eco-situations (AES) within the district

STEP – III - Training of AES team

STEP - IV - Data collection through participatory approaches

STEP-V - Data analysis, identification and prioritization of research and Extension issues

STEP-VI - Developing strategies for research and extension issues in the district

STEP VII – Developing Activity Schedules

STEP-VIII - Approval of SREP

2.10. Operationalization of SREP

This section deals with the operationalization of SREP after its approval by Governing Board of ATMA. The document of SREP acts as a template for setting a direction towards research, extension and developmental activities in the district. Further, it facilitates in the delineation of resource allocation across programme areas. Hence, SREP becomes a basic document for the development of work plans at block, district and state level.

Steps involved in Operationalization of SREP:

Based on the experiences of implementation of SREP in erstwhile ATMA districts under ITD component of NATP, where in the operationalization process can be categorized into five major areas, namely- Action Planning, Fund Flow Mechanism, Execution of Extension and Research Programmes and Monitoring of Filed Activities.

A. Action Planning:

Action planning as a specific step in operationalising the strategies would be introduced so as to implement them at grass root level. The strategies are long term in nature, whereas action plan draws out a systematic approach in realizing these strategies step by step. Though strategies provide the possible future direction, action planning gives an outline of functional attributes in terms of what, when, where, who, (for) whom and how long with financial modalities.

The process of Action Planning is as follows:

1. Project Director shall distribute copies of approved SREP to all GB, AMC, BTT and FAC members of the district. SREP is the basic document from which the BAP, DAP and SEWP are prepared and all the stakeholders in preparation of these plans should be thorough with the intricacies of SREP.
2. BTT members shall identify activities of SREP which are relevant to (AESs) their block
3. SREP acts as a guiding force for identifying the activities, however BTT and FAC members shall take the following issues into consideration for preparing BAP
    a) Extension activities identified in SREP;
    b) Group demands as identified by FAC members;
    c) Ongoing schemes for dovetailing;
    d) Success stories identified for replication.

    The above four dimensions need to be considered on annual/ seasonal basis in the joint meeting of BTT and FAC at each FlA for preparing the BAP.
4. FAC would approve this plan after incorporating necessary correction considering availability of funds and prioritized research and extension gaps. Convenor of BTT is responsible for sending the approved BAP to ATMA.

5. Project Director, ATMA shall organize AMC meeting and put-up the BAPs from all the blocks for technical scrutiny of their relevance as well as for dovetailing.
6. In the meanwhile, ATMA would prepare its ATMA level action plan based on the needs and priorities cutting across blocks boundaries and issues emanating out of SREP. However, PD ATMA must refer to the 'Cafeteria of Activities' given in the Xth plan scheme "Support to state extension programmes for Extension Reforms".
7. Once the AMC scrutinize the BAPs and ATMA level action plan, this will form the basis for District Action Plan (DAP). AMC shall prepare this DAP by keeping funds availability in view.
8. Project Director shall organize GB for discussing DAP. GB will prioritize the issues in DAP depending up on the availability of funds and approve the DAP. GB ensure that there shall be equitable fund allocation across the blocks.
9. Project Director, ATMA shall send the approved DAP to State Nodal Officer for preparation of SEWP with the facilitation of SAMETI and release of funds from GOI.

B. Fund flow mechanism

As per the primary document circulated by GOI under X Plan Scheme 'Support to State Extension Programmes for Extension Reforms", based on the SEWP the funds would be placed with an autonomous institute at state level identified by the state for its onward transmission to SAMETI and ATMAs.

1. Once the districts receive the funds, the same shall be passed on to each FAC for execution of field programmes. The fund will be placed in a bank account jointly operated by Chairman, FAC and Convener BTT.
2. During monthly or fortnightly meetings conducted at FIACs, BTT members would take advance to carry out the activities identified in BAP. The advance has to be

realized immediately after completion of the activities for which it was taken or after 15 days whichever is earlier along with a brief report.

3. Records like Cashbook, Proceedings register, dead stock register etc. would be maintained at each FIAC by Convener, BTT.

C. Execution of Extension Programmes

Once the funds are received by the Convenor, BTT, the field program needs to be executed. Extension Programs like Awareness Camps, Exposure Visits, Demonstrations, and Trainings etc.

D. Execution of Research Programs: Researchable issues identified in SREP shall be referred to Zonal Agricultural Research Extension Council (ZAREC) of ZRS or Scientific Advisory Committee (SAC) of KVK. The issues, which have been emerged during SREP, would be categorized into

a. Long term researchable issues

b. Short term researchable issues

The long-term issues shall be communicated to SAU, ICAR institutions for redressal. The short-term issues may be addressed with the help of local research institutions such as KVK and/or ZRS preferably through on-farm trials.

E. Monitoring of field activities:

- The block level and village level activities would be monitored on monthly basis at FIAC level. The progress made shall be reviewed during the first week of every month in the joint meeting of BTT and FAC members. The Convener of BTT shall compile the progress reports of all line departments and submit to Project
- Director, ATMA
- The review of progress of activities at district level should be undertaken by AMC during second week of every month after receipt of progress reports from the blocks GB shall review the progress every quarter

- Joint interaction workshop of GB and FAC should be conducted on quarterly basis under the Chairmanship of Collector to create common thinking platform.
- The monitoring mechanism at state level include submission of quarterly reports, field inspections, workshops etc. by Inter- Departmental Working Group (ID WG) convened by State Nodal Officer

2.11 STRENGTHENING SREP WITH AGRICULTURAL MARKETING PLAN

Introduction

Production and Marketing aspects of agricultural produce are intertwined with each other. Market-driven production rather than production–propelled marketing is the order of the day. Under the present dispensation, the agriculture and allied departments dealing with production enhancement are totally dissociated from the marketing setup. This has led to conspicuous absence of integration in planning and implementation of different schemes at district level. The need of the hour is to bring convergence amongst agriculture and allied departments in marketing of agricultural produce. This calls for convergence of schemes and resources therein to explore the synergies for the benefit of farmers. Efforts have been made to realize this objective through ATMA platform at the district level. SREP, as a perspective plan, included Research and Extension strategies required for enhancing production and productivity of agriculture and allied commodities based on identified gaps. However, the marketing component did not get due importance in the SREP, partly because the marketing agencies are not a part of the mainstream administration through the normal state budgetary allocation and the monitoring thereof, and partly because these agencies are governed under a separate Act altogether with a network of autonomous APMCs. It is against this backdrop that there is a need to incorporate the marketing component in the SREPs by bringing the production and marketing agencies on a single platform.

At present, the agricultural marketing setup of the state is governed under the respective APMR Act. The agricultural marketing setup of a state is generally a bicameral system comprising a Marketing Board and a Directorate. Under the Marketing Board, a network of APMCs (Agricultural Produce Market Committees) function catering to the agricultural marketing needs of the state. The Regulated Marketing system operating through a network APMCs (democratically elected bodies) have served the needs in the past. However, in course of time a number of discrepancies have crept in to the regulated marketing system and the agriculture sector, as such, is also confronted with many new challenges. This has necessitated introduction of certain reforms in the system so that the marketing aspects of the agriculture economy could be attuned to those on the production front. Under the present arrangement, it so happens that the marketing departments go on creating infrastructure facilities without taking into consideration the needs of the farmers in different production pockets for different agricultural produce. This, in turn, has given rise to lot of dysfunctional aspects in the functioning of the marketing agencies. There is an urgent need to bridge these gaps in the functioning of the marketing agencies keeping in view the marketing needs of the farmers of different agricultural commodities.

The efficacy of the agricultural marketing system has to be assessed in terms of both the infrastructure facilities (hardware) and different ongoing marketing practices (software). An analysis of the existing system reveals that the existing gaps on the marketing front are mainly due to absence of coordination between the production departments and marketing departments. It is also observed that the present agricultural policy/plans are basically production-focused, relegating the marketing aspects to the back burner.

The agricultural marketing system is no more confined to regulated market only rather the change in the dynamics in the agricultural economy has brought about changes in the marketing systems in the form of different alternative marketing

systems such as Contract Farming, Direct Market, Futures Market, Spot markets, Group Marketing, Hub and Spoke model of terminal markets etc. These instruments have the potential to measure up to the challenges of modern agricultural production system. Hence, there is a need to tune the marketing system to the needs of the production system. This calls for concerted efforts of both the agencies i.e., production and marketing, through an integrated planning process. SREP is a veritable step in this direction. Thus, incorporation of marketing component in the SREP will go a long way towards making the agricultural planning process meaningful for the farmers, which is the need of the hour to put the agricultural economy of the country on a growth trajectory.

2. 12 STEPS IN DEVELOPING MARKETING PLAN

Step-I: Interaction between Agriculture & Marketing Department

In the First phase of preparation of SREPs, the Directorates of Agriculture of a States did not involve the Directorates of Marketing. As a result, the district core team for SREP failed to get the support of district level formations of the Marketing Department. It is because of this that justice could not be done to the preparation of the SREPs on the agricultural marketing front. Hence, as a first step, there should be interaction between the Director (Agriculture) and Director (Marketing) for incorporation of marketing plan in the SREPs. The incorporation of the Marketing Plan in the SREP has got tremendous potential to bring improvement in the existing planning activity of marketing department itself, as the marketing plan will now be prepared in keeping with the production pattern of the district. This plan will also be very handy and practical for the marketing department to give requisite market linkage to the production of different agricultural produce at the district level.

STEP-II: Core Team Formation:

District level core team is to be constituted consisting of Agriculture, **Marketing,** Horticulture, Soil Conservation, Animal Husbandry, Dairy Development, Fisheries,

Sericulture, Irrigation, Forest etc., scientists from Agricultural University, Zonal Research Stations and Krishi Vigyan Kendra and NGOs working in the district.

STEP-III: Orientation of Core Team:

The core team has to be sensitized about different aspects of Marketing for which the formats/schedules have been developed. The team will be sensitized about the marketing practices prevailing in the district covering regulated marketing, contract farming, direct marketing, retail chain linkage, futures market, spot market, processing and export of agricultural produce etc.

STEP-IV: Data Collection for the Marketing Component:

Since an APMC is the nodal field formation of marketing department and every part of the district is covered under some APMC or the other, the APMC should be the reference point for collecting the primary and secondary data, in respect of agriculture marketing. This will automatically cover all the representative blocks of all the AESs of the district under SREP. Since each APMC is a unique entity with its own issues, challenges and infrastructure requirements depending upon the arrivals (commodities), each and every APMC in the district has to be covered under the plan. Information should be collected from at least 10 farmers from the area under the jurisdiction of each APMC. The purposively selected sample farmers should be able to furnish information/data on different aspects of agricultural marketing such as contract farming, direct marketing, futures markets etc. Before going in for the data collection, the team should familiarize itself with the marketing scenario of the district with the help of the marketing department. The representative of the marketing department has to play a vital role in this activity. As is evident from the formats prepared for the marketing aspects of the district, the data have to be collected from the different stakeholders such as farmers, traders, exporters, processors, APMC functionaries etc.

STEP-V: Analysis & Consolidation of the data:

The data have to be collected by using the schedules (Part-I) and the formats (Part-II) developed from different stakeholders on different aspects (Pl. see Annexure-I). The schedules will help in finding the gaps and the reasons for the gap in the system. This will also help in chalking out the future strategies in respect of different sub-components of the marketing plan of a district. The gaps and strategies are to be mentioned in the relevant columns of the final formats/ tables to be incorporated in the SREP document. The analysis of the data collected through the schedules/survey should be used in preparing a broad marketing scenario of the district in keeping with the production pattern, crop diversification etc., with a focus on future strategies.

2.13 LETS SUM UP

We have understood that Agricultural Technology Management Agency (ATMA) is mandated to develop a demand driven, situation specific, multi-actor oriented Strategic Research and Extension Plan (SREP) to accelerate agricultural development in the district. The SREP is the basic document, which will give an overview of the prevailing scenario in the district, problems, opportunities in different farming systems, marketing, preferences and priorities of the farming community, facilitate long term visioning and strategic planning for agricultural development in the district in the concerted manner.

2.14 CHECK YOUR PROGRESS

1. What is strategic planning? Explain its need and importance?
2. Explain in detail about the content of strategic plan.
3. How do you analyze farming system? Explain through an example for a crop
4. How do you develop SREP?
5. Describe the different steps involved in operationalization of SREP.
6. How do you strengthen SREP with Agriculture / Marketing plan?
7. Explain the steps involved in market plan?

2.15 SUGGESTED READINGS/ REFERENCES:

1) Reforms in Extension: Experiences from ITD component of NATP in Orissa / Desai, G R. Bhubaneswar : Institute on Management of Agricultural Extension, 2004
2) Public-Private Partnership in Agricultural Extension Management: A Case Study of Hoshangabad Model in Madhya Pradesh / Chandra Shekara. Hyderabad : National Institute of Agricultural Extension Management
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4) Changing roles of Agricultural Extension in Asian Nations / Ban, A W Vanden. Delhi: B.R. Publishing Corporation , 2006
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UNIT-3

FARM TO FARMER EXTENSION SYSTEMS

Highlights of the Unit

- Objectives
- Introduction
- Meaning and Concept of Farm School
- Adarsha Rythu (A Model Farmer)
- Lead Farmer Centred Extension Advisory and Delivery Services (LEADS)
- Progressive Farmers
- Contact Farmers
- Let's sum up
- Check your progress
- Suggested readings/ references

3.0 OBJECTIVES

After going through this unit, learners will be able to:

- Disseminate location specific technologies relevant to different farming situations through farmer-led extension
- Establish an experiential learning situation in the form of successful farmers.
- Utilize the services of successful farmers as trainers to teach fellow farmers at village level
- Make available agriculture training facility at village level benefiting local farmers
- Establish direct linkage between Farmer – Extension – Research

3.1 INTRODUCTION

Public sector agricultural extension system played a vital role in delivering the technological innovations for agricultural development, in the past in the country.

However, changes in the structure of public sector, context in which it operates and likely nature of future technological innovations raise questions whether the institutions that supported the green revolution would continue to meet the emerging challenges. There are about 12 crore and above farm holdings in the country and the fragmentation of farm holding is rising, whereas the number of extension functionaries in agriculture and allied sectors are shrinking which resulted in widening gap between farmer and extension functionaries. In response, a number of organisations at present provide training facilities for farmers in Krishi Vigyan Kendras (KVKs) and farmers' training centres of various kinds (Krishi Gyan Kendra, etc.) at district level in different States. The farming situations vary depending on variables likes cropping pattern, irrigation sources, soil type and resource base of farmers etc. All these necessitates at location specific technology as well as the delivery. To address this requirement of location specific needs at the village level, an alternative extension delivery mechanism is called for.

This is the initiation of the Gov. of India and implemented in a larger way under Extension Reforms Scheme throughout the country. There are hardly any training institutes below block level to meet the technical needs of the farmers. This situation necessitates an alternative system in the form of Farm Schools to address the present lacunae in the extension system.

3.2 MEANING AND CONCEPT OF FARM SCHOOL

The numerous agricultural "**bright spots**"/ success stories existing around the country are associated with the initiative of hard working and innovative farm men and women. Krishi Pandits, Karshaka Shris (an award in Kerala) and other outstanding farmers experience may be leveraged for participatory research and knowledge management system in a more structured manner. Farm Schools are based on the principles of learning by doing as well as "seeing is believing". Thus, farm school will become an important vehicle for technology dissemination at village level to impart a sense of grass root realism to the capacity building programs.

Farm Schools provide the vital link between the *achiever farmers* and others in a village. These farmers would normally be the ones who have been accepted by other farmers as achiever farmers for their success in adoption of technologies, yield difference, and income raised in agriculture and other allied sectors.

The Farm Schools can receive training and technical support on a continuing basis from a network of State or District level training centres, KVKs soil testing labs and the ICT based expert system.

It is generally agreed that farmer-to-farmer learning is the most credible and effective delivery mechanism. It is believed that, if farmers lead extension activities it can reduce the cost in extension to a considerable extent. Moreover, it will have a positive impact since farmers prefer listening and adopting technology from peer farmers because they share similar problems, beliefs and cultural attributes and in a nutshell similar social / cultural environments. This provides easy flow of information using the traditional channels of communication. Farmers as Facilitators will have many advantages due to their rich farming experience and can easily communicate to fellow farmers. Trained farmers will in turn act as trainers for farm school organised in their respective villages. Trained farmer need to be an opinion leader/ key communicator in the locality.

Some other models tried out in different states, where the "farmer" is a teacher is discussed below:

3.3 ADARSHA RYTHU (A MODEL FARMER)

The Govt. of Andhra Pradesh is highlighting the farmer's extension in agricultural development by using Adarsha Rythu from 2007 onwards.

The objective behind the identification of Adarsha Rythus is to introduce a nodal functionary between the farmers and the Extension Staff of Agriculture and other Line Departments to help in bridging the gap between the Research and Extension. The

success of the important intervention of the government lies upon the development of mind set of the Adarsha Rythus as well as the extension staff by recognizing each other as a part of the extension system through regular contracts in the process of sharing information and knowledge.

On successful implementation of Polam Badi to increase the awareness levels among the farmers with increased Crop production, it is decided to strengthen Extension services in the state by Positioning Adarsha Rythu as a facilitator at village level for generating more awareness among the farmers on advanced crop planning, reduction in cost of cultivation, micro irrigation practices, marketing issues, postharvest technologies, Irrigation and other allied agricultural activities.

Inspired with the above ideas and recommendations, the Government of Andhra Pradesh took an important decision to appoint about 50,000 "Adarsha Rythus" (Model Farmers) referred to as Farm Science Managers in Prof. Swami Nathan's Report and the National Policy for Farmers. The Adarsha Rythus were selected from various Panchayats throughout the state at the rate of one from every 200 to 250 farmers in a phased manner during 2007-08 and 2008-09, duly adopting the following criteria:

i) Should have passed 10th Class
ii) Should have age of 25 – 45 years (Second phase)
iii) Should be a practicing farmer
vi) Should hail from same village.

Duties & Responsibilities of Adarsha Rythu

- Act as interface between farmers and the extension staff of all the departments/agencies engaged in extension/input support to farmers by communicating information from the extension staff to the farmers and taking feedback from the farmers to the extension staff.

- Assist the Extension staff in implementation of schemes like RKVY, NFSM, NHM, Crop Insurance, Credit, Pashukranti, Jeevakranti and other Central and State schemes including enumeration during natural calamities.
- Maintain the record of 200 to 250 farmers associated with him/her, such as Name, Survey No., Extent (ha), Nature of occupancy (Owner / Tenant), Caste (SC/ST/OC/BC), Category (MF/SF/OF), Affiliation with any organization (SHG /RMG /JLG/WUA/Other), Nature of farming (Agri. /Horti./ Seri. /AH/ Fish/Dairy/Forestry) Crop(s) raised with extent in ha, Institutional Credit (Short term and Long term) and Credit from Private sources.

Keep the Farmers Informed about:

- Day to day developments with regard to schemes, technology, etc.
- Input availability with subsidy if any and the procedures to avail the same.
- Broad regulatory mechanism for inputs for steps to be taken in case of failure of particular input.
- Mobilize the farmers in special campaigns like, RCY, Rythu Sadassus and Prajapatham etc.
- Participate in the monthly meeting on 3rd Monday with the staff of Agril. and Line Departments at Mandal Headquarter.

The Adarsha Rythus will identify and prepare a list of Non-loaned farmers and provide to Bank Representatives under a copy to the MAO. The Adarsha Rythu will also identify the tenant farmers and form Joint Liability Groups of five farmers each to facilitate in the loaning process. Visit the field along with the Extension Staff on 1st Saturday and any other day as required. Maintain Technical literature such as Padipantalu, Vyavasaya Panchangam and information on schemes of various departments, Telephone Nos of Extension Staff/Officers, etc. Attend other activities as suggested by the extension staff from time to time. Trainings are conducted for district

Level Orientation training programme to the newly selected/positioned Adarsha Rythus.

3.4 LEAD FARMER CENTRED EXTENSION ADVISORY AND DELIVERY SERVICES (LEADS)

The Directorate of Agriculture, Kerala is implementing a new agricultural extension programme LEADS during 2010-11under 'Strengthening of Agricultural Extension' scheme. The institutions involved in the implementation of the program are Department of Agriculture, Kerala Agricultural University.

To revitalize the present system of extension, a concept of Frontier extension system revolved around Lead Farmer-Satellite Farmer Concept on an Agro-Ecological Zone basis within a district is proposed for pilot testing. The lead farmers are an important agent in the chain of transfer of technology in agriculture and not utilized the services of lead farmers for technology dissemination in the state.

Special Features:

1. Regular field visit oriented extension system is proposed. Three lead farmers from each Panchayat will be selected and three Satellite Groups will be formed around the Lead Farmers. An innovation fund of Rs.10, 000 per Lead Farmer will be provided and Rs.5, 000 per satellite Farmer Group will be provided as revolving fund.
2. The Agricultural Officer of the Krishi Bhavans will select the Lead Farmers and identify any existing groups/ constitute new groups around the Lead Farmers. Award-winning farmers may also be identified as Lead Farmers if available in the Panchayat. In the absence of award winners, best achievers in terms of maximum crop productivity or income from unit area will be identified as Lead Farmers from each Panchayat in consultation with Panchayati Raj Institutions.
3. Quarterly meet of Lead famers will be organized at block level in association with the nodal institutions identified in each district.

4. The Lead Farmers, groups of satellite farmers, department officials of the Krishi Bhavans, block level Assistant Directors, Deputy Directors and other associating officials, Field Assistants, Technology Managers, nodal institutions and associating institutions will be provided with BSNL mobile phones with prepaid connections under the CUG network for audio consultations. The SMS based advisory service will also be implemented in association with Kisan project.

Selection of Lead Farmers

- Agricultural Officers of Krishi Bhavans will select three lead farmers from each Panchayat.
- From near each lead farmer, ten farmers called Satellite Farmer Group will be selected.
- The field of lead farmer should form the technology hub of the panchayat.
- Lead farmer should have a potential role in technology dissemination.
- Initially rice, coconut, vegetable and banana growing farmers will be selected
- Award winners and best achievers in terms of crop productivity or income from unit area will be identified as lead farmers.

3.5 PROGRESSIVE FARMERS

Progressive farmer is one who make use of best technologies available and realize the benefits. He may or may not be an innovative farmer. They are almost accepted as opinion leaders by farmers. Ex: Directorate Of Oilseeds Research identified few farmers as progressive farmers and kept in the website for dissemination of their oilseed technologies.

3.6 CONTACT FARMERS

Contact farmer is the main person in T&V system for dissemination of technologies at village level. It has yielded good results in certain pockets but still success depends on the capacity of the contact farmer.

3.7 LET'S SUM UP

In this unit a comparative picture on present extension system followed in all the States of the country to that of Farmer to Famer Extension is dealt. Above all the Farmer to Farmer Extension plays a major role in agriculture and allied sectors. The exchange of information, ideas, knowledge & skills takes place between farmers to farmer. Farmers generally motivated to adopt the technologies if other farmers in the same village adopts. As such the adoption of production and processing, technologies, marketing methods etc., are carried out only because of exchange of information between farmers to farmer. It's the most effective way to address farmer's needs and is emerging as a faster mechanism for technology dissemination in rural areas. It's cost effective, saves human resources, demand driven and situation specific.

3.8 CHECK YOUR PROGRESS

1. What is a farm school? Describe the farm school that you organized.
2. Who is a lead farmer and how does he support extension advisory and delivery services?
3. What do you know about Adharsha Rythu?

3.9 SUGGESTED READINGS/ REFERENCES:

1) Reforms in Extension: Experiences from ITD component of NATP in Orissa / Desai, G R. Bhubaneswar : Institute on Management of Agricultural Extension, 2004
2) Public-Private Partnership in Agricultural Extension Management: A Case Study of Hoshangabad Model in Madhya Pradesh/ Chandra Shekara. Hyderabad : National Institute of Agricultural Extension Management
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4) Changing roles of Agricultural Extension in Asian Nations/ Ban, A W Vanden. Delhi: B.R. Publishing Corporation, 2006
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UNIT-4

FARMER FIELD SCHOOLS

Highlights of the Unit

- Objectives
- Introduction
- Meaning and Basic Concept of Farmer Field School
- Principles of the Farmer Field School Approach
- Characteristics of the Farmer Field School
- The Typical Rice IPM Field School
- Let's sum Up
- Check your progress
- Suggested readings/ references

4.0 OBJECTIVES

After going through this unit, learners will be able to understand

- the basic concepts of Farmer Field Schools
- Principles and characteristics of the Farmer Field School Approach
- the process involved in conducting Farmer Field Schools and
- the concept of Farm Schools

4.1 INTRODUCTION

Green Revolution was launched with an aim of improving the productivity of small farmers. By improving access to water, improved varieties, and other inputs, the Green Revolution helped to double average rice yields between the 1960's and the 1990's.

During the 1970s it became increasingly apparent that pest resistance and resurgence caused by the indiscriminate use of insecticides posed an immediate

threat to the gains of the Green Revolution. At the same time, research was being conducted that demonstrated the viability of biological control of major rice pests. However, gaps still existed between the science generated in research institutions and common farmer practice conditioned by years of aggressive promotion of pesticide use. Over the ensuing years, a number of approaches were tried to bring integrated pest management (IPM) to small farmers – particularly rice farmers – in Asia, with mixed results. Some experts claimed that the principles of IPM were too complex for small farmers to master, and those centrally designed messages were still the only way to convince farmers to change their practices.

By the end of 1980s, a new approach to farmer training emerged in Indonesia called the 'Farmer Field School' (FFS). The term "Farmer Fields Schools" came from the Indonesian expression *Sekolah Lapangan* meaning just *field schoo*l. 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 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 Field School was a school without walls that taught basic agro-ecology and management skills. There is no right way to do Farmer Field Schools, only participatory ways.

Farmer Field School on Integrated Pest Management (IPM) was developed to help farmers alter their practices to diverse and dynamic ecological conditions. Policy-makers and donors were impressed with the results of farmer's field school and the program rapidly expanded. Eventually, IPM Farmer Field School programs for rice were carried out in twelve Asian countries and gradually branched out to vegetables, cotton, and livestock and other crops. From the mid-nineties onwards, the experience generated in Asia was used to help initiate IPM Farmer Field School programs in other parts of the world. New commodities were added and local adaptation and institutionalization of these programs was encouraged. At present, IPM Farmer Field School programs, at various levels of development, are being conducted in over 30 countries worldwide.

4.2 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 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 cyclical learning 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.

4.3 BASIC CONCEPTS OF FARMER FIELD SCHOOL

The basic concept of Farmer Field School is:

- If I hear it, I forget it
- If I see it, I remember it
- If I discover it, I own it for life

1. Adult non-formal education: Field schools assume that farmers already have a wealth of experience, and knowledge. It also assumes that there may be

misconceptions and bad habits learned during intensification programmes (e.g. little knowledge of natural enemies, basic fear of any insect that is seen in the field, etc.). Therefore the field Schools are oriented to providing basic agro-ecological knowledge and skills, but in a participatory manner so that farmer experience is integrated into the programme. For example, when observing in the field, facilitators will ask farmers what something is such as a natural enemy and ask who know what it might eat. Farmers give their response, and the facilitator adds his/her knowledge. If there is a disagreement between anyone, the facilitator and participants will set up simple studies to find the correct answer. In one field school farmers were discussing whether a certain lady beetle was a predator of pests or a pest of the plant. One farmer bet another on their choice. The facilitator showed how to put the lady beetle in a jar one jar with pest prey and the other with leaves. The result was that the lady beetle ate the insects and the loser had to carry the winner around the village on his back. In fact there are both kinds of lady beetles but one type is 'hairy' and the other not. This was seen by the farmers.

2. Technically strong facilitator: The field school is usually initiated by an extension staff member of the government, farmers' organization, or NGO. But in all cases the person must have certain skills. Most important is that the person is skilled at growing the crop concerned. In most countries, the extension staff has never grown crops 'from seed to seed' and most often lack confidence. For this reason, most IPM programs have begun with training field staff in season – long courses which provide basic technical skills for growing and managing an IPM crop. Some people have called this the "Farmer respect course" in that field staff comes to realize how difficult farming is, and why farmers do not immediately "adopt" their "extension messages". Facilitation skills and group dynamic/group building methods are also included in this season to strengthen the education process in the field Schools. An uncertain trainer is a poor trainer. A confident

trainer can say "I don't know – let's find out together" much easier when the inevitable unknown situation is encountered in the field.

3. **Based on crop phonology and time limited:** The field Schools and season long training for trainers are based on the crop phonology; seedling issues are studied during the seedling stage, fertilizer issues are discussed during high nutrient demand stages, and so on. This method allows to use the crop as a teacher, and to ensure that farmers can immediately use and practice what is being learned. Meeting on a weekly basis means that farmers are participating in a course for a whole season.

4. **Group study:** Most field schools are organized for groups of about 25 persons with common interests can support each other, both with their individual experience and strengths, and to create a "critical mass". As individuals, trying something new is often socially inappropriate (e.g. reducing sprays, cover crops), but with group support, trying something new becomes acceptable. The number of 25 is roughly the number that can comfortably work together with one facilitator. Usually these 25 are sub-divided into groups of five persons so that all members can better participate in field observations, analysis, discussion, and presentations.

5. **Field School site:** The field schools (learning field) are always held in the community where farmers live so that they can easily attend weekly and maintain the field school studies. The extension officer travels to the site on the day of the field school

6. **Building groups:** One of the jobs of the facilitator is to assist the field school to develop as a support group so that participants can support one another after the field school is over.

7. **Basic science:** Field schools try to focus on basic processes through field observations, season-long research studies and hands-on activities. It has been found that when farmers have learned about basics, combined with their own experiences and needs, they make decisions that are effective.

8. Study fields [non-risk]: In the learning field of two acres, one acre is meant for conducting long term experiments. Out of which a small (usually about 1000 m2) field kept for each group study. This is the core of the Field Schools. This field is essential for a field school because farmers can carry out studies without personal risk allowing them to make management decisions that they might not otherwise attempt in trails on their own farm. This provides farmers a way of testing a new method themselves before applying it to their own farm. This provides farmers a way of testing a new method themselves before applying it to their own fields. It also allows for more interesting research topics such as defoliation simulations in which leaves are removed. The arrangement of this field varies based on local conditions.

4.4 PRINCIPLES OF THE FARMER FIELD SCHOOL APPROACH

1."Grow a healthy crop" means use Proper crop and plant management methods to allow plants to recover better from environmental or pest injury, avoids nutrient deficiencies related with pest attack (insects and disease), and promotes natural defence to many insects and diseases inherent in plants.[Academic term: cultural controls].

2. "Conserve natural enemies" provides free biological control of insects and diseases. Parasites, predators and pathogens have long been recognized to control pest insects, but recent research shows microbial antagonists, and competitors of plant diseases are also important. Vertebrate natural enemies are also essential for control systems.

3. Conservation usually implies avoiding inappropriate pesticide applications (herbicides, fungicides and insecticides all have impact on insect and disease natural enemies) or improving soil organic matter necessary for beneficial soil micro - organisms. Natural enemy habitat protection and development are more effective methods of conserving natural enemies (e.g. owl houses, mulching for spiders and floral nectarines for parasites). Inoculation or inundation of reared natural enemies may be possible under special circumstances but usually only after conservation efforts have already been implemented. [Academic term: biological control].

4. "Observe crops regularly" means informed decision making for appropriate interventions to be made quickly for water, soil and plant management. Inputs used are based on an ecologic economic assessment: [Academic term: Input analysis].

5. "Farmers become experts" in their own fields is crucial for long term management of soils, pests and crops. Expertise implies a basic understanding of the agro-ecological system, and decision making processes. Simple rules and directives may provide short term benefits but cannot sustain long term local developments.

The farmer field school deals not only with the practice that farmers want to learn about but with farmers as farmers. Farmer field schools are conducted for the purpose of helping farmers to master and apply field management skills. The farmer implements his or her own decisions in his or her own field.

In farmer field school problems are seen as challenges, not constraints. Farmer groups are taught numerous analytical methods. Problems are posed to groups in a graduated manner such that trainees can build confidence in their ability to identify and tackle any problem they might encounter in the field.

The Farmer Field Schools teaches several principles, which bring cause and effect relationships and help farmers to discover and learn. In contrast packaged approaches increase the dependence of farmers on central planners as they are neither cost effective nor effective at improving the quality of farmer's management skills.

Hence, the key principles of Farmer Field Schools are, what is relevant and meaningful is decided by the learner, and must be discovered by the learner. Learning flourishes in a situation in which teaching is seen as a facilitating process that assists people to explore and discover the personal meaning of events for them; Learning is a consequence of experience; People become responsible when they have assumed responsibility and experienced success; Co-operative approaches are enabling; As people invest in collaborative group approaches, they develop a better sense of their own worth ; Learning is an evolutionary process, and is characterized by free and open communication, confrontation, acceptance, respect and the right to make mistakes; Each person's experience of reality is unique; As they become more aware of how they learn and solve problems, they can refine and modify their own styles of learning and action. (*Jules N. Prettty)*

4.5 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. Learning field (2.00 acre) is selected in one of

the trainee of the farmer's field school. 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.

Table 4.1 Typical Farmer Field School Learning Field Lay Out (2 Acres)

Farmers practice (½ Acre)	Long Term Experiments (One Acre)	IPM (½ Acre)

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: The curriculum is integrated. Crop husbandry, animal husbandry, horticulture, sericulture, 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 such 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.

Major Steps in FFS Implementation

- FFS-Structure & Characteristics
- Participants
- Facilitators
- Classroom
- Duration
- Meeting Frequency
- Curriculum
- Session details
- Field Day

Bench Mark Survey:

Bench mark survey was conducted at the preliminary meeting in which base line data was collected for the last season from the farmers to know their farming practices, local pest problems and also the lacunae in the farming. This data is needed to prepare an action (curriculum) for conducting IPM programmes successfully. Based on the base line survey the gaps are identified and to bridge the gaps appropriate interventions are proposed in the curriculum to be taken up at various stages of crop growth in order to reduce the cost of cultivation and increase the productivity.

General Frame work of Farmer Field School:

The farmer's field schools are different from traditional type of teaching in having participatory approach. The sessions were conducted from 8.00 A.M. to 1.00 P.M. on the selected day in every week. During the session's different exercises such as pre and post evaluation through Ballot Box Test (to assess the knowledge level of farmers), Agro-Ecosystem Analysis, identification of pest/defenders, PAR (Participatory Action Research), Insect Zoo activities were conducted. Most of these activities were field oriented. These 14 weeks farmers field school programme helped to study the changes in the pest complex, population dynamics of pest and defenders corresponding to the stage of the crop growth. These field exercises, Group Dynamics etc., made the farmers to understand the IPM approaches and become IPM experts in their own fields.

The Process of FFS

I. Organization and management

Duration: Usually 4-5 hours

Learning: Through sub-groups

Session management: Host teams

Leadership: Elected representatives

Typical Polambadi session

The duration of each Polambadi will be 4-5 hours preferably 8.00am to 1.00 pm.

8.00am - Review of previous week activities, briefing on the day's activity.

8.30am - Field observation on Agro Ecosystem.

9.45am - Short tea break

10.00am - Energizer or group building exercise.

10.30am - Begin making agro-ecosystem analysis, drawing and discuss, management decisions.

12.00am - Each team presents results and group arrives at a consensus on management needs for the coming week.

12.30pm - Special topic

1.00pm - Review of the day, planning for next week, closure.

Each day Farmers Field Schools has to cover four important topics:

Those are

I : Subject Matter & AESA

II : Experimentation

III : Group dynamics

IV : Special topics

I AESA is a four-stage process

1. Field observation
2. Detailed the field observations on a presentation size paper
3. Presentations of results and conclusions/decisions by sub-groups
4. Whole group synthesis the preservations for collective implementations of the decisions arrived at.

Steps in Agro-Eco System Analysis

Fig 4.**1. OBSERVATION**

Fig 4.2.RECORDING

Fig 4.**3 DISCUSSIONS**

Fig 4.4 DRAWING

Fig 4.5 SMALL GROUPS

II. Experimentation

Comparative studies

Field studies e.g. insect zoos, soil texture etc.

Long term or short term

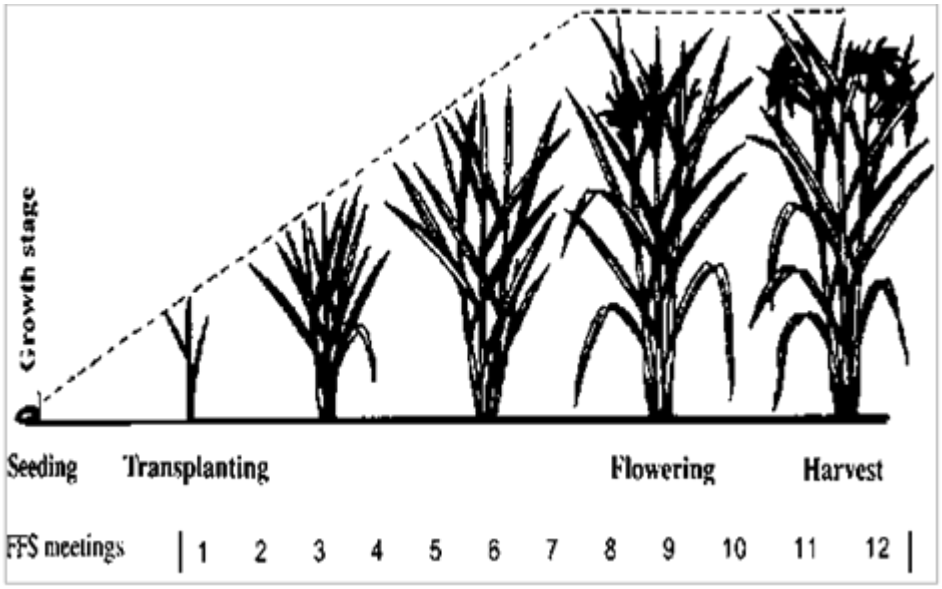


Fig 4.6 Presentation on Agro Eco System Analysis by Farmers

III. Group Dynamics:

To develop

- Team building skills,
- Organizational skills,
- Cooperation,
- Planning etc.

Fig 4.7 Group Dynamics

IV. Special topics

- Build on existing knowledge
- Enable farmer interaction and sharing of information

- Ensure demand lead information dissemination
- Promote interaction between farmers, extension officers and scientists

4.6 THE TYPICAL RICE IPM FIELD SCHOOL

The IPM Field School is a field based learning experience for 25 farmers. The Field School lasts for a full cropping season, meeting at least 12 times with an approximate length of four to five hours per meeting. With the purpose that participant can observe and analyse the dynamics of the rice field ecology across a full season. Each meeting consists of a set pattern of activities: agro - ecosystem field observation, analysis and presentations; special topics; and group dynamics. Agro - ecosystem analysis is the Field School's core activity, and other activities are designed to support it.

During, agro - ecosystem analysis and other activities, farmers divide into five 'Small groups' of five participants each. This is an ideal size for small group discussions. This number allows for sufficient diversity of opinion without being so large as to discourage less vocal participants from taking an active role. After the Field School is completed twenty-five farmers constitutes a neighbourhood support group for IPM of a reasonable size within the context of a village.

Selection of participants takes place at a meeting led by the IPM Field School facilitator with the members of the Farmers Group from which participants will be drawn. At this meeting the Field School process is explained. The facilitator also explains to prospective participants that they will be expected to attend every week for the duration of the season. Prospective participants are given an opportunity to either agree (the 'learning contract') or withdraw.

In some countries the number of meetings of the FFS has been extended to 16 meetings and the number of participants has been increased to 30. When an FFS is conducted in a crop other than rice, there are necessarily changes based on the various actors in the typical agro-ecosystem of that crop (for example plant

physiology, insects, etc.). The process of any FFS should be the same; it is the content that would change as the FFS is conducted with different crops

Agro - ecosystem Analysis: The process of agro - ecosystem analysis sharpens farmers' skills in the areas of observation and decision-making and helps develop their powers of critical thinking. The process begins with small group observations of the IPM and non-IPM plots. During the observation process participants collect field data—such as the number of tillers per hill and various insects and their populations—and samples of insects and plants. These data are collected from ten rice hills. The facilitator is present throughout the observation to help participants in their observations.

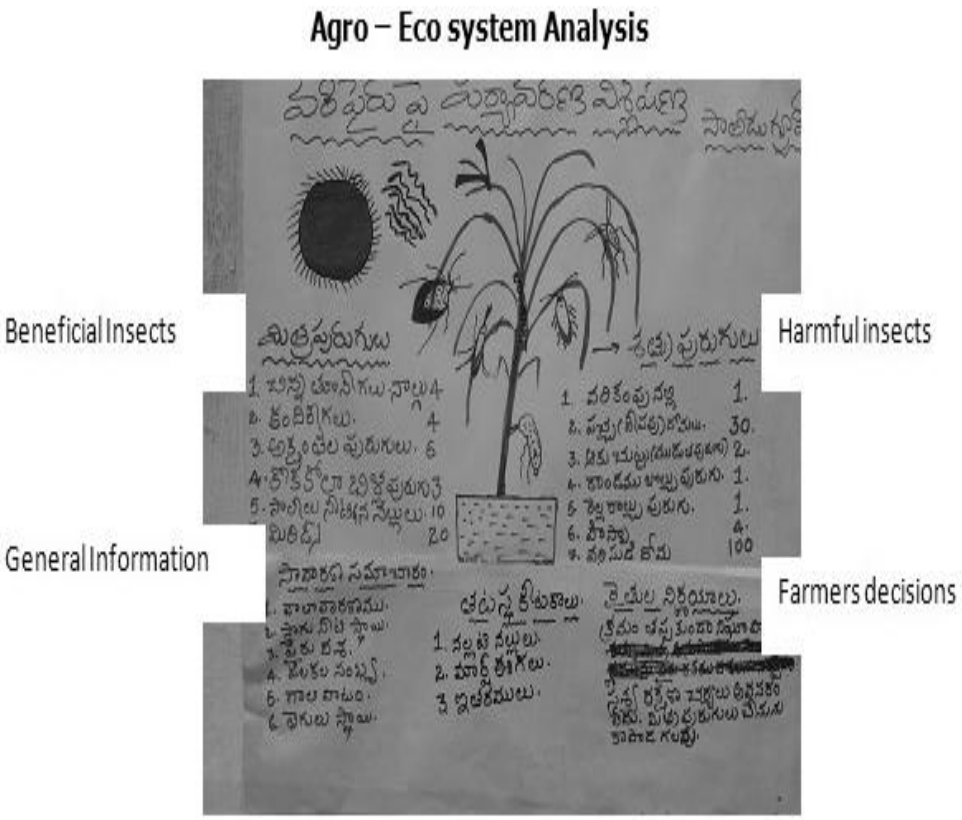
Following the field observation, the farmers return to the meeting place and, using crayons, draw what they have just observed in the fields on a large piece of newsprint or poster paper. The drawings include:

a) pests and natural enemies observed in the fields (pests on one side, natural enemies on the other);

b) a rice plant that indicates the size and stage of plant growth, along with other important features such as the number of tillers, the colour of the plant and any visible damage; important features of the environment (the water level in the field, sunlight, shade trees, weeds, and inputs).

All members of the small group are involved in the creation of the drawing and analysis of data. While drawing, farmers discuss and analyse the data they have collected in the field. Based on their analysis they determine a set of action decisions to be carried out in the field. A summation of these action decisions as agreed by the group is also included in the drawing.

Fig 4.8 Agro – Eco system Analysis



One member of each small group then presents these findings and decisions to the larger group. After this brief presentation of results the floor is opened for questions and discussion. Large group discussions often involve the posing of alternative scenarios, for example questions such as "What would you do if...." This cycle of presentation, question and answer and discussion is repeated until all five small groups have presented their results. Agro - ecosystem drawings from previous weeks are kept on hand as a reference and as material for discussion later in the season.

4.6.1. Agro-ecosystem Activity Matrix

Table 4.1 Agro-ecosystem Activity Matrix

Activity	Critical Steps	Notes	Indicators
(Primary FFS activity Develops Good IPM Habits: - observation -analysis - decision making Farmers become IPM experts)	Observation & Drawing of Agro-ecosystem	Participants need to understand process of observation and its Purpose or objective. Participants in field observing, taking notes, collecting specimens. Purpose of drawing to summarise observation, focus of analysis.	1. Before activity participants will be informed about a) goal of activity and b) Process to be followed in activity. 2. All Participants need to be in the field. 3. Process of observation includes the whole plant. 4. Observations to be written. 5. Specimens to be collected. 6. Drawings, summarise observations.

	Presentation & Analysis	Results of analysis presented to large group by one member of each Small group problems posed, questions asked. **Purpose**: to discuss field conditions & solve "what if scenarios. **Objective**: to improve	1. Presentations made by member of each small group. 2. Participants ask questions of presenter. 3. Facilitator asks questions appropriate to analysis 4. Groups discuss field conditions & agro-ecosystem relationships.
		decision making & analytical skills based on Ecosystem observation. Facilitator helps group achieve objectives by asking/ probing questions to help analytical process.	1. "What if" scenarios discussed. 2. Previous weeks agro-ecosystem drawings used for Comparisons. 3. Field management decisions Critically examined by group. 4. Other factors in addition to

			economic thresholds are analysed (e.g. plant stage, natural enemies) 5. Facilitator uses leading questions to help participants analyse what was learned during activity.

The "Agro-ecosystem Activity Matrix" describes what an observer should be able to see when an agro-ecosystem analysis activity is being conducted. While this is primarily an outline, the 'indicators' column presents those observable processes that are fundamental to the process. Note that the role of the facilitator is to help participants learn, not to teach them.

Special Topics: Special topics support the agro - ecosystem analysis more deeply on the rice agro- ecosystem and IPM principles. Special topics also provide training in basic experimentation methods. Popular special topics include rat control, plant physiology, functions of insects and their interactions, issues surrounding pesticide use, and general field ecology.

4.6.2. Special Topics - Activity Matrix

Table 4.2 Special Topics - Activity Matrix

Activity	Critical Steps	Notes	Indicators
Special Topics (focus on topics such as ecology, rats, biology, etc.)	Statement of goal	Participants must know purpose of activity and what they will learn.	1. Before activity begins participants told goal and process of activity.
	Small group process	Participants clear about what they must do and why. All materials at hand.	1. All participants active and involved in the activity. 2. No small group dominated by one person to the point that others are totally excluded.
	Presentation	Activity analysed by participants. facilitator asking leading questions so that Participants know what happened during activity and why Special topics	1. Participants present results of their work during the activity summarising what has happened and why. 2. Leader asks leading questions to help participants examine steps in process of activity

		provide opportunity to learn of topics important to IPM.	and apply learning to" real life".

Group Dynamics: The purpose of the group dynamics activity is to help participants develop an understanding of how:

- Groups work in given problematic situations
- Cohesiveness and collaboration can be developed
- Communicative action is a fundamental element in well-functioning groups.

These activities generally begin with an introduction by the trainer, who sets up a problem that the group needs to solve. Many of the exercises are physical and active, while others are more on the order of 'brain teasers'. In either case, the group has some fun while sharing the experience of working to overcome a specific problem and learning about how to better help people collaborate.

4.6.3. Group Dynamics - Activity Matrix:

Table 4.3 Group Dynamics - Activity Matrix:

Activity	Critical Points	Notes	Indicators of Quality
Group Dynamics (enhances teamwork & problem solving skills.	Process	Participants informed about objectives and process before activity begins. Materials for activity, if needed, are on hand before activity begins. Time allowed for activity is sufficient to achieve objective. Logistical issues do not disturb process.	1. Before activity begins participants told goal and Process of activity. 2. All participants involved/active, no single individual dominating activity.
	Synthesis	Leader takes time to: review objective of activity; lead discussion concerning what happened during the activity; point out important issues arising during activity; helps participants draw conclusions based on their experience during the activity.	Leader: a) reviews goal and process of activity; b) helps participants identify key learning points based on activity; c) asks questions which help participants learn from the experience

The role of the facilitator is to help participants analyse what they have experienced so that they reach a greater understanding of how people tend to behave in various social situations.

Materials: Some of the materials required to support these activities include plywood sheets (as bases to draw on), large pieces of newsprint or poster paper, crayons, and large felt-tipped pens. Learning materials are learner generated. Farmers generate their own learning materials, from drawings of insects to analytical tools. These materials are always consistent with local conditions, are less expensive to develop, are controlled by the learners and can be discussed by the learners with others. Learners know the meaning of the materials because they have created the materials**.**

4.7 VIEWS ON IPM FIELD SCHOOLS

The basis for the training approach is non-formal education, itself a 'learner centred' discovery process. It seeks to empower people to solve 'living problems actively by fostering participation, self-confidence, dialogue, joint decision making and self-determination. The 'discovery learning' by farmers on the basis of 'agro-ecosystem analysis', which uses their own field observation, is science informed. The agro-ecosystem analysis methodology was developed carefully on the basis of the latest entomological knowledge. Hence this participatory approach does not represent a violation of the 'integrity of science', but rather a new interactive way of deploying science. *Roling and van de Fliert in Facilitating Sustainable Agriculture (pp. 163-165)*

4.8 LET'S SUM UP

In this unit we dealt with the meaning and basic concepts of Farmer Field School. The term "Farmer Fields Schools" came from the Indonesian expression *Sekolah Lapangan.* It 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 neighbouring farmers observe and

discuss dynamics of the crop's ecosystem. Simple experimentation helps farmers further improve their understanding of functional relationships. Farmer Field School was developed on Integrated Pest Management (IPM) to help farmers tailor their practices to diverse and dynamic ecological conditions. Later, there are many other programmes besides IPM Farmer Field Schools which have succeeded to provide good educational results. We also dealt with Principles and characteristics of the Farmer Field School Approach. The Typical Rice IPM Field School is an insight to functionaries to operationalise the Farmer Field School. Farm schools are established in the fields of innovative farmers or farmer achievers who are actually enhancing productivity and profitability in their farms through scientific and sustainable agriculture. The Farmer Field Schools and Farm Schools will be an important alternate extension tools for promoting farmer to farmer learning. These innovative extension tools need to be planned and implemented effectively to reduce the Innovation decision period and enhance the rate of adoption.

4.9 CHECK YOUR PROGRESS

1. What is a Farmer's Field School? Explain its principles.
2. List out important characteristics of FFS and explain them.
3. What are the different topics covered in each day FFS's session?
4. Why group dynamics are important in FFS?

4.10 SUGGESTED READINGS/ REFERENCES:

1) Reforms in Extension: Experiences from ITD component of NATP in Orissa / Desai, G R. Bhubaneswar: Institute on Management of Agricultural Extension, 2004
2) Public-Private Partnership in Agricultural Extension Management: A Case Study of Hoshangabad Model in Madhya Pradesh/ Chandra Shekara. Hyderabad: National Institute of Agricultural Extension Management
3) State of the Indian Farmer: Agricultural Extension/ Shingi, P M. New Delhi: Academic Foundation , 2004 ISBN: 81-7188-370-2

4) Changing roles of Agricultural Extension in Asian Nations / Ban, A W Vanden. Delhi : B.R. Publishing Corporation , 2006

5) Management of Agricultural Extension in Global Perspectives/ Samantha, R K. Delhi : B.R. Publishing Corporation , 1997

6) New Perspectives on Extension Education/ Sharma, S R. Jaipur : Book Enclave, 2002

7) Facilitating sustainable agriculture: Participatory learning and adaptive management in times... / Rolling, N G. Cambridge : Cambridge University Press, 1998

8) Agricultural extension/ Van den Ban, A W. - 2nd. New Delhi : CBS Publishers & Distributors, 1998

9) Modernizing Indian Agriculture in 21st Century: Challenges, Opportunities and Strategies / Hansra, B S. New Delhi : Concept Publishing Company , 2001

10) Farmer-led extension: concepts and practices / Scarborough, Vanessa. London: Intermediate Technology Publications, 1997.

Block-III
Institutional Framework for Agricultural Development

UNIT-1

INSTITUTIONAL SUPPORT FOR AGRICULTURAL EXTENSION PROGRAMS

Highlights of the Unit

- Objectives
- Introduction
- Institutional Support for Agricultural Extension and Pro-active Initiatives of Extension Organizations
- Public and Private Sectors, Cooperatives and Credit Institutions' Support for Agricultural Extension Programmes
- NGOs for Agricultural and Rural Development
- Democratic Decentralization through Panchayat Raj for People's Development
- Let's sum Up
- Check your progress
- Suggested readings/ references

1.0 OBJECTIVES

After reading this unit, learners will be able to:

- Understand various kinds of institutional support for agricultural extension programmes
- Know varied programmes and pro-active initiatives of extension organizations to help farmers' cause
- Comprehend the roles of public and private sectors, cooperatives and credit institutions in agricultural and rural development
- Have better understanding about NGOs' support in empowering rural masses and

- Know the democratic decentralization process through Panchayat Raj in village development.

1.1 INTRODUCTION

To ensure agricultural development in the country which is the mainstay of the 70% of its population, several developmental efforts have been initiated and launched by the successive Governments though 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 with its predominant agricultural economy, the Government supported programmes and activities have not achieved the expected results. And it is pragmatically difficult to expect everything from Government endeavour. And hence, private players and other R & D and business houses have been encouraged to put their might in achieving agricultural development objectives since 1970s onwards particularly during Green Revolution period. Besides technology, sustainable agricultural development requires support from other services like input supplies, credit, market access, local government's cooperation, etc. Hence, institutional support from various public, private and non-governmental sectors is essential. The agricultural development scenario has undergone several changes after the 'green revolution'. Plurality has emerged as the characteristic feature of 21st century agricultural dynamics. This plurality is seen in a marked way in the number and types of institutions directly and indirectly influencing agricultural development. A comprehensive understanding of the institutional support for agricultural development is necessary to know the complementarity and competitiveness of these institutions so as to create conducive institutional environment for sustainable agricultural development. Profile of various institutional support systems for agricultural extension is presented in the next section.

1.2 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 has to operate.

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 cereals and staples. In the past, much of the growth in production was achieved by cultivating more land and irrigating a larger proportion of it. However, with limitations on further expansion of land and irrigation for cultivation, further increase in production has to be achieved essentially by productivity enhancing technologies.

2) Economic liberalization opens new opportunities for farmers to sell their products in the world market, but it also renders them to risks of international competition. These developments favour the more efficient farmers who are supported by a well-organized input supply, marketing, research, and education and extension systems.

3) Many 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 at least as important for extension agents to help their farmers to decide on new farming systems as to decide on new 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 public agricultural extension services, but also from a rapidly growing range of extension service providers. Developments in information and communication technologies (ICTs) have opened up many new opportunities to obtain information and knowledge. Farmers will only turn to their extension agents for more reliable and timelier 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 proactively change in structure and culture will be able to survive in the emerging competitive development dynamics. 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 there is 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.

The optimal structure of any organization, including an extension service, will depend to a large extent on the function of that organization. Thus, the optimal structure for an extension service is different from that for a factory manufacturing a product on the mass production line.

1.3 PUBLIC-PRIVATE SECTORS, COOPERATIVES, AND CREDIT INSTITUTIONS' SUPPORT FOR AGRICULTURAL EXTENSION PROGRAMMES

1.3.1 Public-Private Sectors

The last two decades witnessed declining support for public extension and emergence of a wide range of extension service providers (ESPs) in the private sector all over the world. Similarly, the number and types of organizations providing extension services in India have also increased during the last two decades. In terms of number of staff and organizational reach, the public sector state Department of Agriculture (DoA)

continues to dominate extension provision. Other line departments, research centres and agricultural universities in the public sector play only a very limited role in extension. An indicative list of ESPs is presented in Table 1 and types of ESPs by their nature are presented in Table 2.

Table 1.1 Extension service providers in India – Nature of funding and delivery

Sl. No.	Extension Service Provider	Nature of Funding	Nature of Delivery
1.	Ministry of Agriculture, Govt. of India Department of Agricultural Research and Education (DARE) through Indian Council of Agricultural Research (ICAR) Department of Agriculture and Cooperation (DAC) through Division of Extension & other schemes. Department of Animal Husbandry, Dairying and Fisheries through schemes	Public	Public (front-line)
2.	State Agricultural Universities	Public	Public (first-line)
3.	State Development Departments of Agriculture, Animal Husbandry, Horticulture, Fisheries, Sericulture, Forestry, Rural Development, etc.	Public	Public (mainstream)
4.	Krishi Vigyan Kendras	Public + Private	Public and Private
5.	M.S. Swaminathan Foundation	Private + Public	Public + Private

6.	Agro-Industries Corporations/Khadi and Village Industries Corporation	Public	Public
7.	Agri-business Firms	Private	Private
8.	Agri-Input Dealers	Private	Private
9.	Non- Governmental Organizations and Voluntary Agencies	Private + Public	Private
10.	Farmers Associations	Private	Private
11.	Producers Cooperatives	Private + Public	Private
12.	Consultants	Private	Private
13.	Print medium (Newspapers, Magazines, etc.)	Public + Private	Private
14.	All India Radio	Public	Public
15.	Television	Public + Private	Public + Private
16.	Banks (NABARD, Regional Rural Banks, Commercial Banks, Scheduled Banks, etc.)	Public and Private	Public and Private
17.	Internet	Private	Private
18.	Donors Agencies	Private	Private and Public

Source: Samanta and Sontakki (2005)

A large number of private agencies provide advisory and other support service to farmers engaged in agriculture and allied sectors. These include: input agencies, farmer

organizations, producer cooperatives, agro-processing companies, agri-marketing firms, NGOs, agri-business house, individual consultants, consultancy firms, financial institutions, media and internet services. However, the presence of these private extension providers is generally skewed towards well-endowed regions and high value crops. Crop/commodity focused extension of private sector though very useful, is narrow in one sense as they do not engage with other related issues such as farmer organization development or those issues related to sustainability of resource use.

Table 1.2. Major Extension Service Providers (ESPs) in Government (Public), Cooperative, Private and Non-Government Sectors

Sectors	Major Extension Service Providers
Government (Public)	Ministry of Agriculture, GOI; ICAR (Division of Extension); ICAR Institutes, State Development Departments of Agriculture, Animal Husbandry, Horticulture, Fisheries, etc.; IFFCO
Cooperatives	NDDB, AMUL, Milk Producers'/Dairy Cooperatives, Oilseed Growers Cooperatives, Fishermen Cooperatives, Self Help Groups, etc.
Non-Governmental	Bhartiya Agro-Industries Foundation, MYRADA, Centre for Sustainable Agriculture, Deccan Development Society, Honeybee, Shristi, MSSRF, Centre for World Solidarity, etc.
Private	ITC Ltd. (Soya-chaupals, Aqua-chaupals), Zuari Fertilizers, Monsanto, Syngenta, Mahyco, Nath Seeds, Pro-Agro, CIBAGiegy, Cynamid, RCF, HLL, Wochardt, VetIndia, VetPharma, Hoechst, Ranbaxy, TAFE, Messey & Fergusson, Hindustan Tractors, etc.

Source: Samanta and Sontakki (2005)

Remote areas and poor producers (especially those growing low value crops and having little marketable surplus) are poorly served by both private as well as public sector extension. They rarely meet the needs of small and poor producers who need a broader kind of support to improve their livelihoods. Special efforts to target these areas and groups have to be planned by deploying public funds. Public funds also could be utilized to fund farmer organizations to help them contract services from other service providers including public sector. However, efforts should be made to strengthen the capacity of farmer organizations to prioritize, demand, contract and monitor services. Private extension is not a substitute for public extension and there is a need for significant public funding of extension in the years to come.

Cooperatives

The primary aim of all types of cooperative enterprises is to end man's 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 socioeconomic 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 farmers for its farming endeavour, and if the year met, his objectives of life are accomplished.

The 4 basic needs are:

- Awareness of improved technology and its management practices,
- Advice on appropriate farm planning and resource management,

- Practical farming skills for use of new technologies, production inputs and credit, and
- Post-harvest and marking 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. And credit is the most important to carry out his mission in producing more and marketing more to earn more profit for his family's upliftment socially and economically. And here comes the role of financial or credit institutions to support farmers to fulfil his credit needs.

At present, there are a number of public and private institutions who provide credit to the farmers for the purpose. They are: Nationalized Banks, Gramin Banks, Farmers' Cooperatives, State Cooperative Banks, and NABARD and alike. 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 mostly helped the large and rich farmers than small, medium and marginal farmers.

1.4 NGOS FOR AGRICULTURAL AND RURAL DEVELOPMENT

Non-Governmental Organizations (NGOs)

The Non-Government 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 grass roots 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. The State Village Level Workers and Agricultural Extension Officers, cannot modify the designs received from their higher authorities. As a result these, workers may be forced to promote irrelevant models that are not accepted by the 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; they are generally hard working and efficient in comparison to Government extension agencies when it comes to promoting development programmes in rural areas.

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.

Extension Approach of NGOs and Voluntary Organizations

The method of working of each of the NGOs and voluntary organizations is unique, and is largely determined by its objectives and resources. An analysis of Ramakrishna Mission's rural development programmes over a period of five decades from 1943 to 1993 (Ramakrishna Mission Lokasikhsha Parishad, 1993), may be an eye opener in this regard not only for the extension agencies, but also for other voluntary and non-Government organizations as well.

Goals of development: The overall goal of development as adopted by different branch centres of the Mission, as a rule, had been the development of `potential divinity' in human beings. While operationalizing the concept, development actually connotes greater income generation through application of improved techniques in methods of production. The broad goals thus boiled down to poverty alleviation through income generation.

Entry point: One of the most important components of development strategy is the selection of entry point through which an outside agency enters in a community to do development work. Entry point should normally be based on major areas of concern of the community so that acceptance is instant and encouraging. Entry programmes developed in consultation with the community itself could establish a firmer rapport with the community.

Infrastructure: There are three types of infrastructures relied upon by different branch centres to implement their programmes. The first was direct contact of the Monks with the people with the goodwill of Mission behind them. The second was creation of band of dedicated youth through training and motivation who are deputed to their own communities to carry the message of the implementing centre.

The third type was building up of local youth leadership through community organization by establishing and reactivating local youth clubs and then binding them into operational structures with full autonomy in decision making. Training comes after those groups were identified and developed through the process of community organization.

It was thought that it could be better if self-sustaining organizations with full decision making power at each level could be developed, because such type of organizations could only sustain rural development.

Method of work: The method of work was based principally on the planks of spiritual development, triggering off socio-economic development. Among the three bigger Mission centres, Palli Mongal and Divyayan believed that trained youths could successfully carry their messages on rural development. As such their methods of work

were based on selection of qualified workers, training them in performing the jobs and post them at a given community with the hope that the persons would successfully transform the goals of the Mission centres into practical activities at the community level. They also promoted new organizations at the community level where these trained personnel formed the nuclei. To state briefly, the method of work adopted was based on performances of individuals trained and motivated by the Mission.

On the other hand, the Lokasiksha Parishad developed its activities on the platform of community organizations, crystallized into clusters which did not depend on individuals. In this case, the programme succeeds if the cluster works, which is again dependant on how much pressure the constituent youth clubs put on those clusters to keep it on the right track.

Sustainability: The merit of any programme, especially in the field of rural development, is tested in terms of its capacity to sustain after the initial thrust by the outside agency is withdrawn. Programmes undertaken by Lokasiksha Parisahd relied on local entrepreneurship and marketing, to make them viable. In this case, only entrepreneurship development training is given, but choice of enterprise is left to the individual concerned who is to look for own finance and other facilities including marketing.

1.5 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 the sponsored and the beneficiary. And it has been well recognized that the success of agricultural development programmes largely depend on the participation of the people. And to ensure people's participation, democratic decentralization has been the core principle of the Government and in 1957 Balwanaray

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 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, discharging developmental, municipal and, ultimately, regulatory functions. 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 – the phase of ascendancy (1959-64); the phase of stagnation (1965-69); and 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 grass roots 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 grass roots level a reality.

1.6 LET'S SUM UP

Only effective extension organizations can help, support farmers' cause in providing necessary information, knowledge, skill and inputs to meet their needs in their production endeavour. Institutions like cooperatives, credit institutions, NGOs, Village Panchayats are in the forefront in helping these farmers' cause and meaningful extension organizations must exploit and utilize their services to reach farmers effectively to satisfy their needs.

Hence, the goals of extension organizations must include the following:

1. The transfer of knowledge from research to the clients, who are generally farmers, farm women and rural youth.
2. Advising clients on the decisions they have to make, sometimes by recommending a certain decision to be taken, sometimes by helping them to acquire sufficient insight into the consequences of the alternatives from among which they can choose in order that they can make their own decision.
3. Educating. Helping clients to make a decision in such a way that they are able to make similar decisions themselves in the future.
4. Enabling clients to find their own way by helping them to clarify their goals and the possibilities which they have, together with others, to realize these goals.
5. Stimulating desirable and sustained economic developments.

1.7 CHECK YOUR PROGRESS

1. What do you understand by the term Institution support and how is it useful in the present context?
2. Explain the proactive initiative of extension organization in detail.

3. Write about private sector support for Agril. Extension programs.
4. Describe the role of NGOs in Rural Development.
5. What is democratic decentralization? Briefly describe the role of Panchayat Raj.

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UNIT-2

CASE STUDIES AND SUCCESS STORIES IN AGRICULTURAL EXTENSION MANAGEMENT

Highlights of the Unit

- **Objectives**
- **Introduction**
- **Case study and success**
- **Let's sum Up**
- **Check your progress**

2.0 OBJECTIVES

After reading this unit, learners will be able to:

- Understand the importance of identifying successful cases related to Agricultural sector in your jurisdiction
- Realize the importance of using success stories to motivate, persuade and influence farmers to change their attitude in adopting new technologies.

2.1 INTRODUCTION

A 'success story' is known as a snapshot of reality, a slice of life and facets of development, which ushers in an understanding of the situation with analysis and offers a set of recommendations that can be used as a template for replication.

'Success Story' is not just a 'story' but the art and science of description of real events. It must be based on factual information, with provision of corroborative evidence to support the facts. The principal qualifications of a qualitative success story are the systematic documentation of experiences that sets it apart from the rest. The distinguishable feature of a success story is the set of practices and processes that have helped to bring in optimal 'change' and it must clarify three basic dimensions viz.

What is different?

How is it different?

Why is it different?

The ultimate mission of documenting a success story is to "cascade the effect of success from one to many". The objectives are

- To recognize and communicate a message of 'uniqueness' (success).
- To analyze the reasons for 'uniqueness' (success)
- To provide a set of guidelines (practices and processes) to replicate the 'uniqueness' (success).

The satisfaction obtained from observing direct success among successful farmers or community as a result of our Extension program efforts is most gratifying. These successes may take many forms and may be focused on a single individual, group, or larger population. However, the underlying theme in any success story is the positive result on an individual or society that occurred as a result of our program efforts.

Ultimately success stories should be

- Short, clear, simple and readable
- Reflecting positive change and transformation
- Highlighting project interventions
- Empowering farming communities
- Should attract immediate attention of the farmers

The success stories documented during the NATP (ITD) representing different aspects of farmers will give various facets of agricultural development and extension programmes.

2.2 CASE – 1: SAY IT WITH FLOWERS BUT FIRST GROW THEM PROFUSELY

A story of Chrysanthemum Proliferation

The locale was the drought prone Ahmednagar district. The actors involved were the chrysanthemum growing farmers of Akolner, Chas, Kokangaon, Bhoyarepathar, Pimpalgaon and Nagadevle and the ATMA (Agricultural Technology Management Agency) Personnel in the year 2000.

Though 'say it with flowers is an old adage, flowers had not received our close attention. Only gods and grooms were their recipients. The scenario have changed now and the flowers are in demand as an essential commodity. Birthdays, anniversaries, inauguration, home decor and all such occasions of festivities cannot be celebrated without flower. They are now available in market in all seasons in all Colours, shades, fragrance - pungent or soft. The aesthetics of flowers is everywhere now and is going to reach new heights as an indicator of the cultural aesthetics of our society. The ATMA, Ahmednagar in its programme of positive intervention in agriculture related issues of the farmer, realized that though drought prone, Ahmednagar block of the district was a major flower growing area and chrysanthemum had the lions share in flower production. It was a cash crop in Akolner Chas, Kokangaon, Bhoyarepathar, Pimpalgaon and Nagardevle and approximately 400 acres were under cultivation.

Problem: Knowledge gap vis a- vis low income.

These farmers were found to be unaware of the new high yielding floral varieties, new package of practices as well the importance of drip irrigation for efficient use of available water. They were also ignorant of the techniques of improving the flower quality. They lacked the still in harnessing the post-harvest technologies too.

All these had a collective and adverse effect on the income of the chrysanthemum flower growers of the area. Once the problem and its causes were identified, the ATMA team sought to go ahead with its package.

Intervention & Process

ATMA as the first step organised exposure visit of flower producing farmers during 2000 to the Floriculture Research Centre of MPKV, at Ganeshkhind, Pune and to successful flower producing farmers of Rajgurunagar in Pune District. During the exposure visit the farmers were exposed to the improved varieties, package of practices and importance of drip irrigation for efficient utilization of available well water for quality production of flowers. Subsequently for the same group of farmers, a training programme on improved package of practices was conducted with the help of scientists from MPKV, Rahuri. Improved varieties of Chrysanthemum i.e. Sonali-Tara and Baggi were introduced in villages of Akolner, Kamargaon and Chas by organizing adaptive trials during the year 2000.

The Flower growers of Akolner have formed the 'Akolner Phulotpadak Sangh, a Farmers Interest Group for arranging the inputs, production and marketing of flowers under the guidance of Mandal Agricultural Officer. Members of this group met and exchange ideas on every Monday under the guidance of Agricultural Officer of the mandal. Before formation of the group, the produce was being sold at local markets without any grading and packaging and return was not at par with the investment. Now the group has been oriented about the packaging and grading of the flowers and they are sending flowers collectively to distant markets of Nagpur, Baroda, Mumbai, Surat and Ahmedabad.

Benefits & Impact

- The high yielding improved Sonali-Tara variety of chrysanthemum in the area.
- Production of chrysanthemum flower increased from 5-6 to 10 t /Ha.
- Area under chrysanthemum under drip irrigation increased from 50 acres to 125 acres.

TDMC Members Exposure Visit to Chrysanthemum Demonstration Plant at Akolner, Ahmednagar

Lessons & inferences:

- The beneficiaries when exposed to the successful examples, research stations and trained on production practices, adopted the improved package of practices.
- A continuous guidance and support from extension workers is important.
- Formation of farmer's interest group is important for maximum adoption of technology in the villages.
- For better remuneration, the farmers must be trained about post-harvest technologies.
- Water management practices are found very crucial for higher production with better quality.
- The location specific need based technologies by involvement of farmers are helpful for technology adoption and improving income level.
- Group approach for sustainable technology dissemination is important.

Case – 2: Artificial Insemination (A.I.) in Goats

The credit for success of widespread Artificial Insemination in goats goes to Kiran Rajput of Bodhegaon in Phulambri Tahsil in Aurangabad district. ATMA impressed upon the poor farmers that goat rearing was a remunerative activity.

Though goat rearing is a remunerative activity for poor farmers, they have local goats having very low productivity. Two improved breeds "Shirohi" and Osmanabadi are available but it is a difficult process of replacing the breed. The better alternative is upgradation of goats through cross breeding. Animal Husbandry Department has been undertaking several activities for cattle. A.I. for cattle is also an important programme. However for local goats, in-spite of huge scope very less attention was is paid. Hence ATMA decided to take up this task.

Project Director, ATMA informally came to know that a paravet Shri Kiran Rajput from BodhegaonTq: Fulambri took up A.I. in goats on experimental basis. ATMA identified his success story and decided to give publicity to it for replication. ATMA

developed a folder on the success story and invited Kiran Rajput to organize a training programme on Goat rearing.

Farmers' awareness about A.I. in goat increased. The crossbred goats were fetching higher prices in the range of Rs. 1500 - 3000 /- compared to local ones (Rs. 800 to 900) per male goat. Besides this, female goat got matured earlier. As ATMA published this information through a leaflet and in local newspaper, Mr. Kiran Rajput started getting enquiries from all over district and groups of farmers were coming forward for A.I. in goats.

- Two groups of farmers having goats are now regularly getting A.I.
- FAC members of Aurangabad Taluka visited; thereafter several farmers have been visiting to see crossbreed goats leading to more adoption of A.I. in goats.
- ATMA identified the success story, had dialogue with AHD dept. officials, AMC members and then encouraged both AHD dept. and paravet to try it on a larger scale. ATMA invited paravet as trainer, He was recognized as a trainer and his confidence went up. BTT officials also identified 2/3 farmer groups in Fulambri block and linked them to Mr. Kiran Rajput for getting A.I. done.

Case – 3: Value addition - An effective tool for transformation of economy

Cashew is one of the major horticultural crops of Ratnagiri district. Total area under cashew in the district is 70577 hectors and is increasing at a phenomenal rate of 5% per annum. Total production of cashew nuts in the district is 1.12 lakh tonnes per annum. In spite of large-scale production, the economic gain to the cashew orchard owners was meagre. The main reason for this was 99.78 % of the total produce was sold in raw condition and only 0.22 % was processed.

A study undertaken by ATMA revealed interesting findings. The farmers were fully aware of the benefits of Cashew Processing. But cashew processing involves a very delicate process. The processor should have sound technical knowledge which was not available to them. Therefore, some units which were already existed had become sick.

None was willing to start processing unit. Another revelation was that at least 12 tons of raw cashew nuts were required for commercially viable micro processing unit.

The average cost of one tonne cashew nuts is Rs. 35,000 and the total capital required for raw material is Rs. 4, 20,000. Small-scale processors would not have the financial backup to procure this much raw material.

Challenges

The premier task before ATMA was technical training. Therefore, ATMA had organised 11 training programmes for owners of sick units as well as for potential entrepreneurs. The courses covered selection of good quality raw material, boiling of nuts, cutting, drying, grading, packaging, marketing etc. (For new entrepreneurs on machinery selection, project report preparation, govt. schemes etc.).

All potential entrepreneurs were called twice in a month and technical session of three to four hours was held at ATMA's office, which was followed by a discussion session. The response was excellent to these training programmes. A total of 311 farmers participated in these programmes. Another aspect was relating to Stocking of Cashew nuts. ATMA had facilitated a support linkage between *Kharedi Vikri Sangh* (Cooperative Trading Societies) and the entrepreneurs. These societies purchased cashew nuts and got them processed by the micro cashew processing units.

Apart from the above ATMA also took care that the new entrepreneurs were benefited under the subsidy scheme of the Department of Agriculture on priority basis.

Major Achievements

As sick units were revived, people came to know about the tremendous potential of the industry. Hence, demand for training as well as cashew units got increased. Due to training, 89 new micro cashew units started functioning in the district. (Chiplun-28, Guhagar-11, Sangameshwar-3, Mandangad-5, Dapoli-12, Lanja-3, Ratnagiri-17, Khed10). Every year these units process on an average 12 tonnes per unit. A total of 1068 tonnes of cashew processed in 2002-03 and the value addition was to the tune of Rs. 213 lakhs.

During the year 2001-02, amount of convergence in the form of subsidy from the department of agriculture at the rate of Rs. 25,000per unit to 89 new units was Rs.22.25 lakhs.

Replication

Success of the effort could cover only 1% of the total produce, 99% of the cashew produced in the district is still not being processed locally. To achieve cent percent value addition, 14000 more micro processing units are needed for the district. Therefore, ATMA is trying to replicate this feat in the entire district by well-planned task oriented training.

Case – 4: Group Effort of Women Interest Group (WIG) in Floriculture

The women of weaker section of the society wanted to do some work on their own to earn some income for their families. It was difficult for them to find a suitable enterprise which would not only give decent returns, but also provide gainful employment to fellow women. The case of Mrs. Shanti Devi is an example which could be portrayed to show that where there is a will there is a way. Mrs. Shanti Devi received training from ATMA, Patna and was advised to form a WIG and get registered with ATMA so that ATMA could provide necessary support to her group keeping the mandate in mind. ATMA not only helped her in procuring good quality planting material of marigold but also provided marketing linkages through another FIG from Bishanpura village of Bihta block.

Mrs. Shanti Devi belongs to the weaker section of society and she took lead in planting the new crop of marigold and selling it in the local flower market. In this endeavour, she gained support from three of her fellow women who pooled their land and money to start this new venture in 5 kathha of land and later leased in another 27 kathha to make in one acre. The initial working capital of Rs. 1,000/- was collected from their own savings in 2003 and within no time they started earning a profit from the sale of garlands in Patna flower market.

The group distributes the earning as per the share of land and money contribute to this venture and time devoted in their enterprise. She gets seeds/ planting material of

marigold from Kolkata through another FIG, for planting during summer season and uses local seeds and planting material for other seasons. Mrs. Shanti Devi now intends to send flowers to distant places like Kolkata and New Delhi because she feels that the Patna flower market for marigold has reached a saturation point. She now wants to diversify to medicinal and aromatic plants cultivation if proper technology and planting material is made available to her group.

Outcome Benefits and Impact

The group started with an initial working capital of Rs. 1,000/- which was collected from their own savings. The group now earns a net profit of Rs. 10 to 15,000/- per annum per acre of land from the sale of marigold flowers. This has brought a sea change in their lives.

Lessons Drawn/ Inferences Drawn

The success of flower cultivation in the extremist infested area has lead us to believe that if sincere effort are made to improve the incomes and living conditions of the rural poor, this would not only eradicate extremism but also create better opportunities for others to emulate them.

Possibility of Replication and Future Implications-

As a result of Mrs. Shanti Devi's success in cultivation of marigold and its marketing, this activity has picked up in a big way in the area and about 50 women farmers are now involved in its cultivation resulting in a sea change in their lives. This model can very easily be followed elsewhere under similar circumstances.

Case – 5: Bee Keeping Through Women Self Help Group

Mrs. Rekha Devi is a resident of village Patiyasa Jalal under Bonchaha Block in Muzaffarpur District. She is 30 years old educated lady having six family members including three children. She belongs to a very poor family. Due to lack of any source of income, the whole family was facing stress in their livelihood.

Apiculture was practised in neighbouring village and being inspired from that her husband also started the same and she helped him. But due to lack of means & proper knowledge, on apiculture was going on very slow pace.

Once Mrs. Suman Kumari, Lady Extension Officer-cum-BTT member and Mr. Sushil Kumar Sinha, BAO-cum-Chairman, BTT, ATMA, Muzaffarpur, organised a meeting in her village under ATMA programme. They advised the people for adopting Apiculture by forming group of active young women. In the meantime, Horticulture Department organised a training programme sponsored by ATMA, Muzaffarpur especially for women group in which Dr. S. R. Singh, Scientist of Apiculture (Beekeeping), Rajendra Agricultural University was invited as trainer. After getting inspiration they started Bee keeping with 10 boxes of bees.

At present there are 13 women members having 150 Bee boxes. For starting business, they got Rs. 2.50 Lakhs as loan from UCO Bank, Bochaha with the help of ATMA functionaries. It costed nearly Rs. 5000/- per box per annum and gained an income of Rs. 6000/- per box per annum. This business runs throughout the year. After the end of season in their own locality, women moved to Ranchi & Punjab along with their Bee boxes in a group for collecting honey. Besides selling honey, they also sell Bees, boxes and Wax Plates to other interested people (having interest in bee keeping).

Neighbouring women groups have also been attracted to this business.

They are paying back the bank loan amount and saved Rs. 60,000.00 as revolving fund. This amount is being utilized as per the requirement of the group members.

Apiculture is a very fruitful business if it is taken up systematically with improved techniques. This business is very helpful in upliftment of living standard of the people. They want to setup a processing plant and also produce different bye-products of honey. Mrs. Rekha Devi, group leader giving training and required material to newly trained women on cost and thus getting more benefit. Now she is living happily with her family members and her children are studying in local convent school.

Case – 6: "Hello ATMA"

Dissemination of Technology through Information Technology in ATMA – Kurnool

Background

ATMA – Kurnool was established with the prime aim of Technology Dissemination to the farmers. It is found that the live interactive programmes between farmers and ATMA experts through Electronic Media are found to be very useful to the farming community to get instant and immediate solutions to their problems.

Intervention and Process

ATMA – Kurnool has launched a live programme **"Hello ATMA"** on All India Radio – Kurnool Station during 2003 – 2004 and Broadcasted live programme on every Monday between 7-30 P.M to 7-45 P.M with a team of Scientists / Experts on a particular subject. The farmers can call and interact with the team members by dialling Phone (08518 – 259386) on various aspects and covered 23 topics on Agriculture, Animal Husbandry, Horticulture, Sericulture, Marketing etc. The ATMA, Kurnool provided telephone facilities free of cost to the farmers at all the FIACs to facilitate the process of interaction.

Benefit and Impact

Farmers from different villages even from the adjoining, villages of Mahabub Nagar District also shown very much interest and participated actively with enthusiasm in getting the technical information from the team of Scientists / Experts. The programme has become popular among the farmers and officials within a short time. ATMA, Kurnool has completed 23 programmes broadcasted through All India Radio – Kurnool and responded to more than 500 farmers.

Lessons Learnt and Inferences Drawn

The farmers from interior and remote areas could be able to interact directly with the team of experts on their Agriculture related problems. The farmers could be able to get immediate solutions to their problems and needed information.

Possibilities and Replication

The success of the programme was appreciated by many of the farmers including District Administration and steps have been taken to continue this programme during this year also.

Case – 7: Crop Diversification with Marketing Tie-Up

Socio Economic Back Ground

The District is categorized under Southern Agro Climatic Zone of Andhra Pradesh based on soil type, rainfall and altitude. The average rainfall of the district is 918 mm and it is distributed equally both in Southwest monsoon and North-East Monsoon. Red soils and red sandy-soils occupies major portion (91%) of the District. Alluvial Soils are seen in parts of Chittoor and Bangarupalem Blocks. The District is not having perennial rivers. For irrigation, the farmers purely depend on Tanks Wells and Bore-wells.

The Major crops in the district are groundnut, paddy and sugarcane. The district is suffering with drought due to non-receipt of rainfall. Groundnut is cultivated in Rabi under I.D. Conditions in 28,000 hectors. Paddy is cultivating in 35,000 hec. In Kharif and 48,000 hec. In Rabi. Sugarcane is cultivating in 35,000 hec. The area under principle crops are declining due to water problems and functions in the prices.

There is hardly any functional linkage between farmers and marketing institutions. The middlemen who corners major chunk of profit of Prime producers as well as ultimate consumers.

Intervention and Process

There is every need that the farmers should go for diversification within their farming systems in view of soil degradation imbalance of nutrients, depleting underground water resources and erratic rainfall. The farmers of the district are depending on poultry and dairy are major source of subsidiary income.

Chittoor District is the second largest poultry population in the State. The poultry industry is formed as a union at District level named as "Chittoor District Poultry

Association". For preparation of poultry feed, the District Association is importing 30 to 32 truckloads of (300 to 320 MTs) of maize from the neighbouring state of Karnataka daily.

The soils of Chittoor District is best suitable for growing of Maize crop even though there is a immediate market within the district and the crop requires less water. The farmers are reluctant to grow Maize crop and the area under Maize is only 80 hec. in the District.

ATMA, Chittoor has identified the demand and potentiality of the Maize crop. The Project Director and Chairman of ATMA has decided to popularize the Maize crop in the District. In Kharif 2002, ATMA has conducted 22 No. of awareness camps in all the Blocks on Maize crop. ATMA also printed leaflets / Pamphlets on Maize crop. ATMA also conducted six Exposure Visits from six Blocks to the Karnataka State. Scientists from Maize Research Station, Rajendranagar were also invited and conducted workshop at Revenue Division level. Eighty Maize FIGs were formed covering 710 No. of male and 110 No. of Female members.

Impact

ATMA, Chittoor has contacted the District Poultry association and came to an understanding on purchase of Maize from the growers. The poultry association given a written agreement that they will purchase the maize seed at Minimum support price i.e., @ Rs.485/- per Quintal. The Poultry association also agreed to supply 2 MTs of poultry Manure on free of cost to the maize growers.

To boost up the Maize crop, ATMA, Chittoor has supplied Maize seed on free of cost in an extent of 400 acres in Kharif, 2002 and for 1000 acres in Rabi, 2002-03, as an incentive technical support is given by the ATMA and BTT Officers for cultivation of Maize.

Outcome

- The case study of Sri Kanakarajulu of Pulicherla Block shows that, 20 quintals of yield is obtained and the farmers got net profit of Rs.9000 acre and incurred a nominal Rs.1, 500 as cost of cultivation.

- Under drought situation and with the availability of limited ground water, Maize crop is accepted as alternative crop to Sugarcane & Groundnut under irrigated dry conditions.
- Maintenance of Maize crop is very easy as the crop is free from pests & Diseases.
- The crop come up in 100 to 120 days duration and assured immediate market is available within the District.
- After harvest, the farmers can use the stalk as Green fodder for cattle.
- The normal area under Maize in the district is increased from 80 hec. to 1150 hec. with the intervention of ATMA.

Lessons Drawn

With the availability of depleting ground water resources, the farmers are convinced with the Maize crop and accepted as an alternative crop to traditional crops like Sugarcane and Groundnut under irrigated dry conditions.

Since, there is an assured market and with the Minimum Support price, the area under Maize is increased drastically.

This type of proper linkages with markets not only improves the overall income but also serve as incentive for adoption of high production technology and diversification of existing farming systems. The farmers are realized the need for diversification within their farming systems.

Economic Benefits achieved

- Cost of the cultivation is less
- Requirement of irrigation water is reduced in drought situation compared to other ID crops.
- Free from pest and Diseases.
- Duration of crop is short and the farmers will get immediate intense.

2.3 LET'S SUM UP

The above success stories indicate that it is possible to bring positive changes in the attitude of farming community through their active participation, collective efforts and planned and systematic efforts of extension.

The above success stories only an indicative. Similarly many success stories are available in various aspects of Agriculture and Allied sectors in every locations. Extension functionaries has to identify such innovative success cases and have to be documented. These documented cases can be used in the training and other activities as a source of inspiration for the neighbouring farmers for replications. Similarly the fields of the success cases can be utilized during the exposure visits to further convincing the farmers for up scaling in a larger scale.

2.4 CHECK YOUR PROGRESS

1. Write a success story of a farmer in ATMA.
2. Describe the success story of a Goat farmer.
3. Write a success story of a farmer that you came across on value addition.

2.5 SUGGESTED READINGS/ REFERENCES:

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