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Agricultural Extension Manual

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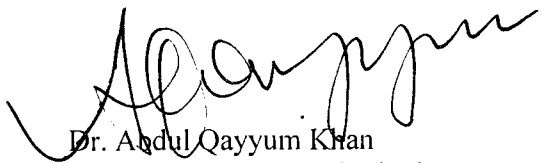
Irrigation Infrastructure Development and Water Management Practices (Vol.I-Pushto)
Sustainable Use of Water Resources and Irrigation System Design (Vol.-II-English)
Manual for Preservation of Fruits and Vegetables) (Vol. III-English, Vol. III-Dari)
Agricultural Extension Manual (Vol. IV-English)

FOREWORD

This book is fourth in a series of Training Manuals produced by the International Arid Lands Consortium (IALC) and the University of Illinois at Urbana Champaign (UIUC) under the Human Resource Development Program of Afghanistan. This program is funded by the United States Agency for International Development (USAID). This Manual entitled "AGRICULTURAL EXTENSION MANUAL" has been prepared by Syed Amir-ul-Hassan Zaidi and Zakirullah, Extension Experts, with the support of the participants of the course, who conducted a short training course No.0404 entitled Extension Methodology and Technology Transfer from May 1st through May 30th, 2004 at Faculty of Agriculture, Kabul University, Kabul, Afghanistan. The course was executed by using a participatory approach whereby the course participants were the key actors involved in identifying their needs, problems and constraints, weaknesses and strengths of agricultural extension service in Afghanistan. Twenty participants from Ministry of Agriculture and Animal Husbandry, Universities of Balkh, Kandhar, Nangarhar, Alberuni and Kabul and Mercy Corps, an NGO, attended the course.

The Agricultural Extension is an important component of Afghanistan's Agriculture Development. The main components of an efficient Agriculture Extension Service are Agricultural Extension, Communications Supports Network for Extension Service, Agricultural Education and Linkages between Farmers, Extension Agents (Technology Transferers) and Agricultural Researchers known as "The Technology Triangle". The development of a viable, efficient, effective and responsive agricultural extension service that would support agriculture and rural development in Afghanistan would require development and strengthening of these components through capacity building in agricultural extension, education and research system.

This Manual provides basic information on all of agricultural extension development components that would be useful for farmers, agricultural students, University and Agricultural College teachers, extension agents, extension management, agricultural researchers, private and pubic sector agencies involved in agribusiness and agricultural development of Afghanistan who have a special need for an in-depth understanding of agricultural extension and research system for agricultural and rural development.



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1. BASIC CONCEPTS OF EXTENSION EDUCATION

Concept: Gaining of an idea and understanding about a discipline, system or a thing i.e. what it is, what are its characteristics, merits, demerits, elements, definitions, principles, objectives, structure etc.

Education: Education is the aggregate of all the processes responsible for bringing about desirable changes in human behavior.

Types of Education

1. Formal Education
2. Non-formal Education
3. Informal Education.

FORMAL EDUCATION

This type of education is organized in educational institutions i.e. Primary, secondary and higher secondary schools, colleges, technical institutes and universities. It is divided into calendar months and years.(chronological order). Ist, IInd, IIIrd year and so on.

Characteristics/formalities.

1. Attendance is compulsory
2. A rigid schedule is followed.
3. One way flow of information i.e form teacher to students.
4. A prescribed syllabus or subject matter is followed.
5. Formal education is carried out for a certificate, diploma or a degree.
6. Admission and examinations are compulsory.
7. The students (audience) are homogenous in age, thinking etc.

NONFORMAL EDUCATION

Any organized systematic teaching outside the formal system for groups of people with particular needs is defined as non-formal education.
Examples are: Agricultural Extension, Adult literacy campaigns, instructions in health and nutrition etc.

Salient Features:

1. It is beyond the walls of a school or college e.g. Agricultural Extension. In this the extension agent teaches the farmers in their fields. Extension agent is the teacher and the farmers are his students.

2. The subject matter which is taught to the farmers is based on the problems of farmers e.g teaching to use fertilizer judiciously, proper use of pesticides, using good seed, methods of sowing, harvesting etc.

3. Schedule is not rigid. It is flexible and may be changed according to situations.

4. The clients (students) are heterogeneous in age, thought and practices etc.

5. Attendance is not compulsory. It is optional.

6. There is no admission or examination like in Formal Education.

7. No degree or diploma is awarded in non-formal education system.

INFORMAL EDUCAITON

It is a lifelong learning process by which every person acquires and accumulates knowledge, skills, attitudes and insight from daily experiences and exposure to the environment.

Important Features

1. It involves a sociological process.

2. It involves the transfer of ancestral knowledge from generation to generation.

3. Bringing up of children in the family and children acquiring traits and characteristics of their parents and elders is also considered as informal education.

EXTENSION EDUCATION

This is a short statement about a thing, system or discipline for understanding what it is and what it is about.

DEFINITIONS OF EXTENSION EDUCATION

What is Extension Education?

Extension Education is a teaching and learning process. It tries to bring about three types of changes in human behavior.

1. Changes in knowledge or things already known e.g. knowledge about crops, new irrigation practices, Integrated Pest Management etc.

2. Changes in skills or things being done e.g. how to use scientific methods for crop production.

3. Changes in attitude or things felt e.g. people realize the importance of new practices and adapt to them.

Extension education has been defined in different ways over a period of time.

1 In the early stages it was defined as "out of school" education because university teachers delivered lectures and arranged demonstrations outside the university at community centers or farmers fields.

2. Helping people to help themselves.

3. Learning by doing.

4. A two-way channel bringing scientific information to the people and taking the problems of the people to the scientific institutes for solutions.

5. A living relationship between the people who carry on and the individuals who benefit from participation.

6. Teaching people what they need as well as how to work out ways of satisfying their needs and inspiring them to accomplish their desires.

7. Changing of attitudes – working in harmony with the culture of the people.

8. Working with adults, young people and children to fulfill their needs and wants.

9. The development of individuals in their day to day living – the development of their leaders, then society and then their world as a whole.

10. Teaching lessons which will expand the welfare and happiness of the people within their own families, villages and country.

11. Teaching the people to identify a problem and find a suitable solution.

12. A cooperative development of "farm performance" to solve farmers' problems.

13. Stressing on the development of the most valuable resources of the nation.

14. UNDP's definition of Agricultural Extension:

Extension is a complex process that involves changing human behavior through communication while its basic function is to enhance the capacity of farm families to deal with their problems and to meet new opportunities, its major task is information transfer to improve agriculture.

Some General Principles that Guide Extension work.

- ❖ Be based on conditions that exist.
- ❖ Involve people in actions that promote their welfare.
- ❖ Aim at peoples interests and needs.
- ❖ Use democratic methods i.e. bottom up approach.
- ❖ Use local leaders.
- ❖ Use existing institutions.
- ❖ Use trained specialists.
- ❖ Work with all family members.
- ❖ Help people recognize their needs.
- ❖ Use the community approach.
- ❖ Monitor and evaluate continuously.
- ❖ Keep programs flexible.

Objectives of Extension

Objectives are defined as expression of ends towards which our efforts are directed.

Good objectives are clearly worded, attainable, justifiable, socially desirable and developmental. It develops people as well as the program. Well-defined objectives help us know what we are aiming at and let others know how to select the proper extension method or combination of methods for our teaching situation and to see what progress we are making.

There are three levels of objectives.

1. Fundamental objectives.
2. General objectives.
3. Specific objectives or working objectives.

Fundamental objectives:

These are the all-inclusive objectives of a society. They are also known as basic, remote or overall objectives. Examples of fundamental objectives are development of the individuals of communities, of the society itself and of a country, good life, better citizenship and democracy. With reference to agriculture, fundamental objective may be to improve agriculture and raise the standard of living of the people of Afghanistan.

General objectives

These are more specific than fundamental objectives. These objectives are the bases of the long term program which aims at better crops, homes and income. We try to make people more efficient, improve income and improve the standard of living of our farmers in particular. An example is to improve the yield per Jerib and quality of wheat or any crop grown in Afghanistan so that living standard of these growers is improved.

Specific or working objectives

Specific or working objectives are outlined to address the specific problems of the people. Each specific objective has three aspects.

1. A particular group of people i.e. farmers, traders, teachers etc.
2. A particular subject matter area e.g. irrigation, fertilizer, pesticides etc.
3. A definite change in the behavior e.g. introduction of new crop variety acceptable to farmers.

Importance of Extension Education

New ideas and technologies are developed at Agricultural Research Stations. Extension conveys these results to farmers and helps in the adoption of innovations. These innovations are of no use unless they are put to practical use. It is through extension that these innovations can reach the people speedily. Moreover, extension service takes the problems of farmers to the specialists for solution.

Scope and uses of Extension Education

Extension education effectively works in the following professional areas.

- ❖ Increasing agricultural production.
- ❖ Increasing irrigation efficiency.
- ❖ Improvement in marketing of agricultural products.
- ❖ Conservation of natural resources and their best utilization.
- ❖ Better standards of families.
- ❖ Youth development.
- ❖ Leadership development.
- ❖ Community development at both urban and rural areas.
- ❖ Promoting adult education.

Philosophy of Extension

- ❖ People are intelligent.
- ❖ They are interested in obtaining new knowledge.
- ❖ They are interested to utilize new information for improving agriculture and their own living standards.

Major conditions for effective extension work

- ❖ Realistic agricultural policy to ensure reasonable profits for farmers from increased production.
- ❖ Well-trained and competent extension agents.
- ❖ Performance oriented environment that provides good incentives for better efficiency and output.
- ❖ Clientele oriented approaches.
- ❖ Tested and proven technologies.
- ❖ Strong Research – Extension – Farmer linkages.
- ❖ Continued training programs.

- ❖ Improving mobility and availability of extension workers.
- ❖ Timely availability of extension workers.
- ❖ Timely availability of essential inputs and services to the farmers.

Meaning of Extension in foreign languages

1. **Dutch:** In Netherlands, the word Voorlicht is used for extension which means "lighting" the pathway ahead to help people find their work.

2. **Indonesian:** In Indonesia they use the terminology "penyuluhan" which means lighting the way ahead with a torch.

3. **Malaysian:** In Malaysia the term used for extension is "perkembangan" which has the same meaning as used in England and USA.

4. **German**: They use the word "Berating" which means advisory work. They also use another terminology for extension work in health education "Aufkarung" which highlights the importance of learning the values underlying good health and stresses the point that we must know, clearly where we are going. For Agriculture education they use the word "Erzichung"

5. **Austrian:** They use the word "Forderung" meaning "furthering or stimulating to go in a desirable direction". It is similar to the Korean term "rural guidance"

6. **French** They speak of "vulgarisation" which stresses the need to simplify the message for the common man.

7. **Spanish**: They use the word "capactacion" which indicates the intention to improve people's abilities through training.

8. **Arabic:** They use the word "Zirhat (زراعت) which means extension.

9. **Persian:** The word (Toseehj) is used which means extension education.

10. **Pashto:** the word (Toseeh) is used for extension education.

EXTENSION TERMINOLOGIES

- ❖ **Extension System:** It refers to extension organization such as Ministry of Agriculture System, University Extension System, NGOs Extension System or private companies extension system.
- ❖ **Extension Strategy:** Refers to a chosen course of action such as multi-step information flow strategy or multimedia strategy.
- ❖ **Extension Methods:** Refers to educational techniques used by extension system i.e. personal, group or mass method.
- ❖ **Extension Approaches:** Refers to models used by a system.

2. HISTORICAL DEVELOPMENT AND FUTURE OF AGRICULTURAL EXTENSION

Agricultural extension work has a very purposive but un-recorded history. It has a long history scattered over centuries which is full of activities like innovations, changes and adaptation and development in the different countries.

Its evolution extends over nearly four thousand years, although its modern forms took place in the past two centuries.

Origin of the Term Extension.

The use of the word "extension" was derived from an educational development in England around 1850. Teachers of two ancient universities Oxford and Cambridge discussed how they could serve the educational needs of growing population in the industries in urban areas near their homes. After prolonged discussions, practical attempt was made in 1867 which was designated as "university extension" Teachers delivered lectures outside the university in common community places on various topics.

The activity developed quickly to become a well-established movement during the last years of the century. Lectures were mostly given on literacy and social topics.

By 1890, in many states of America, "out of college" lectures were established after influencing similar work in England. They used the term extension for these lectures.

The history of extension education can be divided into two eras.

1. The Distant origins (old history).
2. The modern Era.

1. The Old Era.

1800 BC: The first known example was found in Mesopotamia (presently Iraq). Archeologists had unearthed clay tablets of the lime on which advice for watering crops and getting rid of rats was inscribed.

- Some pictures or symbols in Egypt contained advice on avoiding crop damage from rats and loss of life from Nile's floods.

❖ 2nd century BC to 4th century BC: Several important latin texts were written about practical farming experience which aimed to help Roman landowners to maintain and improve their estates and their revenues.

❖ At around the same period, early forms of disseminating agricultural information also began in Imperial China.

❖ **25 to 220 AD:** Late Han Dynasty began the support of relevant agricultural research and the dissemination of information and advice to farmers.

- **535 AD:** Chinese agricultural Treatise "Essential techniques for the peasantry" aimed to show landowners how to improve their estates management.

- **960 – 1368 AD:** The Sung and Yuan Dynastic promoted agricultural research, extension work and teaching of agriculture and sericulture (silkworm).

Similar activities continued during 1368 – 1912 in China.

2. Towards the Modern Era.

1304 AD: The earliest known agricultural text was written in Latin by Pietro and was translated in Italian and French. This became the first book on agriculture which was printed in 1450 AD.

1557 – 1573: Thomas Tusser of England wrote "hundred good points of husbandry" which was printed in 1557 and expanded in 1573.

17th Century: During the early 17th century, Francis Bacon's writings based on his observations and scientific experiments on his farm in north of London, began the application of Science and scientific method to agriculture.

1750 AD to 1800 AD: In England and other European countries progressive farmers established agricultural clubs or societies. They held regular meetings and demonstrations and exchanged ideas with other farmers. These societies disseminated information to farmers and advocated its adoption by them.

1800 – 1845: In Europe agricultural science was evolving rapidly. The first extension service of a modern kind came into existence as the result of an outbreak of potato blight in Europe, especially in Ireland. Royal Agricultural Development Society of Ireland which was founded in 1841 delivered lectures on how to improve crops and how to grow nutritious root crops other than potatoes.

Close of 19th Century: Agricultural Extension systems spread to Germany, Denmark, Netherlands, Italy, Switzerland, Austria, Russia, France, USA, Japan and Australia.

Later on, it spread to Asian Countries including India, Pakistan, Nepal, Bhutan, Bangladesh and Srilanka.

Modern Agricultural Extension:

In the early years of 20th century, extension services were in their formative stage. They were relatively small in scale and limited in scope of their work. Contact with farmers was not frequent. They were not organized well, although they were established through legislation.

They were organized either by central or provincial governments or by agricultural colleges, usually in close association with experiment station or by farmer's organizations i.e. agricultural societies, cooperatives, farmers' unions or chambers of agriculture, or combination of these bodies.

Through passage of time, the organizations matured. The following changes occurred.

- Govt. funding increased and became important.
- Objectives have become broader.
- Extension workers have become better trained and more professional.
- Several other kind of organizations have developed extension work e.g. agricultural related commercial companies; agricultural commodity boards concerned with markets and quality of products; Non Govt. organizations (NGOs) are involved in agricultural and rural development.
- Agricultural extension organizations have grown, changed and become bureaucratic with distinct hierarchical structures.
- Fieldwork extended to local areas, sub-divisions, tehsils, districts and divisions which involved extension departments in management activities and promoted top-down approach.

During 1975 to 2000 the work of extension services has become diversified. In the less developed countries, main focus remained on food production but efforts to change behavior and attitude of farming communities, especially small poor farmers gained momentum.

In the western countries or northern world, surplus production created problems.

Intensive production methods created associated problems like environmental deterioration, which became important aspects of extension work. Socioeconomic guidance e.g. introduction of novel crops or livestock and involvement of farmers in various rural enterprises also remained the main thrust of extension.

Agricultural extension is now an essential mechanism for delivering information and advice into modern farming. Privatization of extension organization has been promoted in some countries especially in the western countries where farmers pay for extension services which were free in the past.

The pace of change in the organizations, functions, strategies and approaches of agricultural extension is clearly accelerating.

The Future of Extension:

- The need for agricultural and rural information and advisory services is likely to increase.
- Extension will remain a key policy and priority of governments for promoting sustainable agriculture.
- Participatory (bottom-up) approaches will be encouraged and replaced with top-down approaches.
- Rapid use of information technology will be done by extension services.
- Effective and sustainable extension models will be evolved and practiced extensively.
- The future will call for more able, independent, and client-oriented extension workers.
- The emphasis will be on the quality of interaction between extension agent and client rather than only conveying of messages as practiced presently.
- Flexibility and adaptability will be seen and practiced extensively.

NECESSARY CONDITIONS FOR EVOLUTION OF AGRICULTURAL EXTENSION

Apart from the importance of farmers and agriculture in the society, some conditions are necessary for the initiation and organized development of agricultural extension work.

- Prime or most important condition is that information has been assembled, systematized and made available to farmers and other clients under suitable environment.
- Secondly, this information is used to educate professional agriculturists who may further enlarge or refine this knowledge.
- Thirdly, an appropriate organization should exist for dissemination of knowledge.
- Fourthly, there should be official mandate or legislation to promote and control extension activities.
- Lastly, incidence of immediate critical situations like famine, outbreak of insect pests or diseases, crop failure and soil deterioration may cause initiation of extension work. This has happened in the past in Ireland – potato blight and India – famine. After these hazards, extension work was started and promoted on a large scale.

3. ROLES AND FUNCTIONS OF AGRICULTURAL EXTENSION

Roles and functions of extension organizations are related with the goals they have to achieve. Agricultural Extension is one of the policy instruments which a government usually uses to stimulate agricultural development.

Most extension organizations try to achieve several goals. However, the emphasis on the various goals differs from country to country.

Agricultural systems have six functional components:

1. Production refers to the physical tasks involved in cultivating crops and raising livestock.
2. Supply and credit are concerned with obtaining the physical inputs.
3. Marketing is concerned with the storage transport and sale of output.
4. Research aims to discover new facts about agriculture.
5. Extension aims to transfer of this knowledge to producers.
6. Regulation is concerned with the allocation of resources such as land and water, with agricultural rules, quality control and so on.

All the six functional components stated above are to be linked closely for achieving self-sufficiency in agricultural produce in a country in which agricultural extension plays a pivotal role.

Agricultural extension is now-a-days operated by many organizations i.e. Govt. Ministries, private companies and Non-Government Organizations (NGOs). Their ultimate fundamental role is to achieve self-sufficiency in food and working and launching freedom from hunger campaigns. However, each organization has different specific objectives to achieve and consequently perform their role to achieve these goals.

The goals of extension organizations in general include:

- The transfer of knowledge from agricultural research to the farmers.
- Advising farmers on the decisions they have to make, sometimes 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 and make their own decisions.
- Education – helping farmers through training programs to make decisions in such a way that they are able to make similar decisions themselves in the future.
- Stimulating desirable agricultural development.
- Helping farmers' to establish farmer's organizations and cooperatives.

Agricultural extension organizations supervised by the Ministries of Agriculture have to play the following roles.

1. **Policy formulation** for increasing agricultural and animal produce.

2. **Regulation:** Make and implement rules regarding inputs supply, marketing, check adulteration and credit etc.

3. **Coordination:** Establishing links with sister organizations to achieve common goals of development.

4. **Strengthening linkages with Research and farmers:** Extension works as a bridge between agricultural research and farmers i.e. it takes research results to farmers and conveys farmers' problems back to the research organizations for solution.

5. **Human Resource Development:** It imparts training to farmers, women and youth in different disciplines to promote agriculture through skill development. Moreover, it arranges training programs for its professional and paraprofessional staff for updating their knowledge and improving their skills.

6. **Improvement in marketing system:** Extension organizations try to help farmers to get appropriate price for their produce for which necessary help in marketing their produce is provided. Farm to market roads, cold storage, credit for transport etc. are some areas in which extension helps the farmers to get these facilities from the concerned departments.

7. **Farmers' Exchange Programs:** Agricultural Extension sponsors farmers' exchange programs i.e. they send farmers to and invite farmers from other areas for learning experiences within the country and outside the country.

8. **Constitution of Advisory Committees:** Advisory committees at local, provincial and country level are organized by the extension organizations that formulate policies and advise government on different issues.

9. **Special Campaigns:** Extension organizations conduct special campaigns to combat problems like outbreak of insect pests and diseases on crops. They issue instructions to farmers to improve agriculture in odd circumstances.

10. **Preparation of Crop Estimates.:** Agricultural extension organizations are responsible for preparing crop estimates and fix targets for crop production.

The role of an Agriculture Extension agent is to help farmers form sound opinions and to make good decisions by communicating with them and providing them with information they need.

These opinions and decisions are also based on farmer's value, although they are not always clear about this relationship. Therefore, the extension agents must also help them clarify this. Hence, the agents can help farmers with their decision making on their path way towards knowledge as well as on their path way towards choice. People acquire their images of reality in which they live by learning from their own experiences, by observing other people's experiences, by talking with other people about their experiences and about research findings and by thinking about information they have gained in these ways.

Farmers have expectations about the way agricultural extension agents will help them, likewise the agent's superiors also have expectations about the agent's role. The agent, as the middleman, can be in trouble if the role expectations of these two groups conflict. There is a high probability this will occur if:

1. The superiors expect the agents to implement an agricultural development program which may not be in the farmers' best interest even though it may be in the national interest for increasing export earnings.

2. Farmers expect their extension agents to provide services rather than to help them with their education, especially if the agent's role has not been explained to them.

3. Extension agents are expected not only to perform an extension role, but also other roles, such as policy regulations or supervising credit, which conflicts with the extension role.

The Agricultural extension organization and the extension agent should keep the following points in mind when helping farmers to form sound opinions and to make effective timely decisions.

1. The extension manager and agent must clarify in their own minds the circumstances under which they may influence farmers and those under which they must influence them.

2. Farmer's trust in their agents is imperative for good extension. In order to win this trust, the farmers must realize that the agent is trying to serve his interests, that he can empathize with them and that he is an expert in his filed. An agent will be more likely to win this trust if he visits the farmers in their field or at their homes, rather than expecting the farmer to visit his office.

3. An individual's actions are constrained by his environment. The extension manager and agent should ask themselves if they should help the farmer make the most of existing opportunities in his environment or if they can expect to achieve more by helping the farmer to influence the environment itself.

4. An Extension agent who wishes to help a farmer must try to see everything from the farmer's point of view, his problems, his goals, his knowledge and his use of language. It may be useful to help the farmer express how his feelings influence his behaviour, so this can be discussed openly.

5. It is much better for a farmer to find his own solution to a problem than for an Agricultural extension agent to find it for him. He will be more motivated to

implement his own solution in practice, and will feel more responsible for his own decisions.

6. Every one's behavior is strongly influenced by positive reinforcement of his own past experience, as well as by the norms of the groups he belongs to or would like to join. It is often easier to change norms of a group as a whole rather than to persuade an individual to deviate from these norms. Just like an individual, the group will have to discover itself that such a change is desirable if it is to change its norms.

7. All members of a group are unlikely to adopt innovations simultaneously. Less progressive group members are more likely to be influenced indirectly by their fellow members who are opinion leaders than directly by an extension agent.

8. Effective communication is extremely difficult without feedback about how the receiver interprets the source message. Pre-testing mass communication messages and establishment of two way communication such as in radio forums/TV talks can give useful information based on which changes in the messages can be made.

9. Extension managers and agents can make systematic use of information gained from evaluation of extension programs. How they have been implemented, their effects and the reasons. Why the results are as they are. Feedback of this kind is essential for effective extension work.

10. An agriculture extension agent should also understand many aspects of:
    - Crop and Livestock production/management.
    - Farming as an Agribusiness.
    - Agriculture Development processes.
    - Farmers and the way they learn and understand.
    - Rural society and their living conditions.

The agriculture extension agent can fulfill the rules and tasks outlined above if he satisfied certain requirements himself. He must have adequate technical knowledge to solve farmer's problems, or he must be able to obtain this knowledge when required. This information must be accurate. Farmer will quickly lose their confidence in an agent who gives them incorrect advice, especially if it had been possible to give correct information. An agent must also develop cordial relationships with farmers that are favorable for their development. Among other things, an agent should be aware of how his personal feelings may influence his relationship with farmers.

Additional roles of Extension agents are:

- Acquire accurate information about farm families, their problems, needs and capabilities.
- Provide opportunity to rural people to work in cooperative group action.
- Give leadership to the group.
- Use a variety of extension teaching methods which are best suited to the situation.
- Work for the uplift of rural life and environment.
- Bring latest agriculture technology to the farming community, so that their income is enhanced.
- Make people aware of the conditions prevailing in progressive countries.
- Take the problems of rural people to scientific research institutes in order to get them solved.
- Change the attitudes, knowledge and skills of the villagers.
- Bring a psychological change in the minds of the village people who are in favor of adopting new ways of life.

4. CONSTRAINTS IN TRANSFER OF TECHNOLOGY

INTRODUCTION

There are a number of hurdles in the transfer of technology in the developing countries. The nature and intensity varies from country to country and even within the country, there are variations. A number of reasons may be there which give rise to such variations which form or are seen in the form of bottlenecks in the adoption of a new technology. Some of these may be basic; some may be technical while others may be social or not acceptable by the culture or traditional norms of that society. When the member and intensity of these constraints are more or severe the speed for accelerating development is slow. Regardless, the efforts of the nation are there to combat or to find appropriate solutions for it and to make advancement by adopting new technology to improve the farm yield, sound economic position by more earning and even exporting some surplus to earn foreign exchange and ultimately have a sound and stable position in the community of nation. A number of these constraints will be mentioned here which will make the readers enthusiastic to work for their solution within their jurisdiction for achieving a high status of life for their countrymen.

A. BASIC CONSTRAINTS.

1. **Land is the basic limiting factor in the way of development.** Along with this is the growing population. This land is further scattered in small pieces which is open for further fragmentation with the result that the cultivation in such cases becomes uneconomical. The farmers involved in such type of farming are either engaged full-time or part-time in the farming but their return from the land is uneconomical and their ultimate end is only survival and nothing more. Consolidation of such land is the proper solution. However, the community awareness, education is the prerequisite to make the way for its adoption and facilitate the Government for its implementation.

2. **Proper study of soil surveys.** This is the next important factor. No proper development and higher farm production can be achieved unless and until a proper soil survey is made, which will give a clear picture of different soils, their characteristics and suitability to different crops etc.

3. **Water Recourses.** This is the next priority for agriculture development of the country. When enough sweet water throughout the year is not available no yield or return is expected from soil. No matter how good the soil is. The basic factor is that "Water is life" and what ever we see around us in this universe is due to WATER.

4. **Manpower Potential.** The most powerful element on the surface of soil is the human beings (manpower). When this power is put in the right direction for productive purposes, it will revolutionize the whole structure of the society. Therefore, highest priority should be concentrated on the development of manpower for economic productive purposes.

5. **Comprehensive Soil Surveys and Mapping.** The soil surveys are of highest priority and necessary mapping of various ecological zones will be facilitation for implementation of various agricultural development programmes in a country.

6. **Detailed Basic Data for Planning.** For any developmental project preparation and implementation, availability of accurate data is a basic requirement. No project programme is to be prepared or implemented unless and until an accurate basic data is available.

7. **Marketing, Pricing Policy for Crops and Animal Products.** For systematic Agricultural Development approach, a proper pricing and marketing policy for crops and animal products is a basic factor. In case there is no such policy, all the efforts made for increasing production and transfer of technology will have bad repercussions. Therefore, it should be properly planned so that the expected increased production is consumed locally or exported on a reasonable market price.

8. **Establishing Cooperatives or Services Centres.** This is another domain which needs attention while prioritizing. Due to fragmentation, inheritance division, the farming is no more an economically sound business. To combat the situation, establishing cooperatives or joint farming system on sound footings are to be launched to take care of small and marginal farmers. This will facilitate the supply of necessary inputs like seed, fertilizers, pesticides, farm machinery etc. Moreover, they will also look after their farm produce in a better way.

9. **Soil and Water Conservation.** This covers deforestation and soil erosion issues. Due to increase in population, the demand for fire wood and construction has increased to construct additional houses. As a result, the cutting of forests has increased enormously, resulting in nude hills and increased soil temperature and pollution. Deforestation makes the soil surface open, which is further deteriorated by windstorm and rains and a lot of soil erosion takes place as the upper layers are deprived of valuable soil nutrients. In this cycle, the soil productivity is affected and results in lower production / yields.

   Moreover, sedimentation of rivers, ponds and lakes also takes place slowly. Similarly, the soil fertility is affected and water retention capacity of soil is decreased due to less deposition of organic matter in the soil. This is a slow process and cannot be observed over a short period. However, its effects are very serious in the long run.

10. **People's Commitment.** Another factor or constraint in the way of development depends on the people's attitude towards their commitment to the change in development and economic prosperity and how hard they work for achieving a better change in life. The dedication to the country and national development in the form of change through education, awareness, skill development, adoption of new technology are some considerable steps.

B. TECHNOLOGICAL CONSTRAINTS.

1- Non-availability of high yielding crop varieties, which are resistant to lodging, having more nutrients requirement and resistant to insects, pests and diseases, is a great problem faced by the farmers. Evolving of varieties suitable to different agro-climatic conditions, and acceptable to the farmers and consumers are equally important points to be considered. At the same time, availability of such crop varieties which are salt tolerant are to be searched out.

2- High cost of chemical fertilizers and pesticides is also another dilemma which retarded the development or adoption of improved production technology.

3- Majority of the farmers are uneducated and living in rural areas and ignorant of latest production technologies. This is also a setback in the transfer of production technology.

4- Availability of frost and drought resistant varieties in horticultural and other crops is also a short-coming.

5- Better Farm Management to utilize the full potential of new technology is another aspect of development. This is of highest importance in the agriculture production. Breeding and evolution of short duration varieties to suit the unstable agro-climatic condition is another dimension in development.

6- Multiple cropping or Mix cropping and relay cropping are new approaches which are not broadly used. They are labor and fertilizer intensive but at the same time give extra income and reduce the cost of production of main crop.

7- Judicious and balanced use of chemical fertilizers is another dimension which is to be addressed properly.

8- Due to paucity of soil and water testing laboratories in appropriate number and places, no soil analysis is done on which proper dozes of fertilizers are to be recommended. Soil and water analysis facilities are not fulfilling the needs of farmers which need to be enhanced.

9- Due to the introduction of mechanized farming, the trend of rearing farm animals has decreased, with the result that availability of farm yard manure has decreased.

10- Weeds Control. Integrated weed control through cultural practices, crop rotation, mechanical means i.e. weeding, hoeing and chemical means (weedicides use) is another issue in the development/transfer of technology, which needs to be addressed.

11- **Reclamation of waste land**. Soils are deteriorating due to erosion or other soil problems. In addition, some of the fertile land around the cities is being brought under housing which is another dilemma for the Agriculture development. This needs attention of the state and other organizations.

They should look into such negative developments and adopt some appropriate preventive measures for its control.

Farming Research in varied agro-climatic conditions in the form of farming system research and extension is another factor to be worked upon in order to bring more appropriate change, suitable to varied agro-climatic conditions.

Presently, supply of sufficient inputs especially improved seed, planting materials and animals is also a main constraint in many developing countries. Special attention is required to solve this problem.

Administrative Constraints

One of the biggest constraints in developing countries is the administrative constraint. Due to hindrances like political, bureaucratic/top down administrative approaches, the concept of agricultural extension, education, motivation, move or slogans "Helping people to help themselves" could not be floated easily. Such types of approaches do not permit the participatory approach where farmers participation or sharing is involved. This leads to less priority of agricultural development activities.

Staffing of Technology transfer projects is another constraint which includes non-availability of trained staff, delay in the recruitment policy of the state, frequent transfers and postings of in-efficient staff in Agricultural Extension Developmental Projects. In addition, lack of incentives to extension workers in the field i.e shortage of mobility or transport facilities in the field is also a serious problem.

EXTENSION CONSTRAINTS

1- **Non Extension Activities**. Since the motivational drive awareness is being conducted by the Extension Organization with the main task of transfer of technology to the farming community, this segment of motivational drive is not given appropriate attention because the extension organization/set up is involved in secondary activities/functions like provision or facilitating of input services and in some cases, other administrative matters.

2- **Training**. Regular and appropriate training programmes are insufficient for Extension personnel to equip them with the changing circumstances and to educate the farmers in adoption of latest findings to improve the socio-economic conditions of farming community.

3- Extension approaches/methodology for community development is given less priority to motivate the youth club, farmer's organizations and interest groups.

4- With the changing scenario, the extension curriculum needs necessary changes. Changes are to be made towards the educational, sociological and psychological aspects for field training in Extension methodology.

5- Proper studies for in-depth evaluation of the system and critical analysis in performance and identification of constraints are to be carried out for some fruitful changes.

6- Proper infrastructure for the training of farmers is needed for developmental changes.

Social Constraints

Every nation and its inhabitants are living in a society with some norms, customs and traditions whether good or bad, they have to live with it. Extension Specialists have to consider the following factors in extension developmental programmes:

1- For working with the farmer's communities in rural areas some specific strategy is to be developed which is in accordance with their norms and best suited to them.

2- Change is sometimes difficult for the community to accept but purposeful demonstrations can solve these problems.

3- The elders in the family/society have supremacy in decision making. Their help must always be sought if new ideas are to be introduced by the Extension Specialists.

4- Group rivalries, jealousies, illiteracy self centered attitudes are some other factors which exist in rural societies. Sometimes they are very prominent and sometimes they are hidden. Extension workers should be well aware of these constraints and adopt an appropriate strategy to promote extension activities in such problem areas.

A number of constraints viz-a-viz, administrative, technical, social and organizational were dealt with to some extent in the preceding paragraphs. This will help the readers especially the Extension workers to broaden their vision when working in the rural set up and accordingly mould their course of action according to the prevailing situation.

Some of these constraints will be more prominent in a situation like Afghanistan which passed through a number of external and internal wars and conflicts which gave rise to the multifarious problems in the society. However, this situation is to be accepted as a challenge for the Extension organizations and its workers to handle the situation tactfully and move forward by bringing rapid changes through education awareness, motivation and adoption of new positive developmental changes in the rural areas of Afghanistan. The Extension worker is not really a state employee/functionary but he is more than that. He is a social and technical reformer who has to perform many functions for the development and rehabilitation of Afghanistan.

5. DIFFERENT MODELS/APPROACHES OF AGRICULTURE EXTENSION

INTRODUCTION

A number of agriculture extension models/approaches are used world wide which are adjusted according to the cultural and socio economic conditions of a country. The most commonly used models are briefly explained below:

1. THE TRADITIONAL APPROACH.

The general extension approach tends to look at the importance of farming in general. It tends to help farmers increase their production through the application of new agricultural technologies. It assumes that if farmers apply improved technologies, their farm production will increase and they will be better off. The approach mainly concentrates on the transfer of technology from top to the bottom.

Since the general extension approach is top-down oriented, the decisions are generally made by the people at the top and implemented in the field through Extension Field Staff (EFS). Government controls program planning. Priorities are determined by the government functionaries. Local people are seldom involved in the process. This is the oldest system of Agricultural extension applied in many countries including Afghanistan. This program was started in 1902 when the canal irrigation system was introduced in the Indo Pak Sub-continent.

Main features.

- Public, multipurpose, multifunctional system.
- Limited training of field staff.
- Limited technical specialists and communication support of field staff.
- Much of extension worker's time spent on other activities.
- System generally top-down in orientation with more attention given to better-off farmers.

Common Weaknesses

- Inadequate finances, especially lack of operational funds.
- Poor personnel and financial management procedures; little use of management information system (MIS).
- Few or no incentives to recognize and award superior performance.
- Field staff generally poorly trained or equipped to carry out a wide range of extension activities.
- Adhoc or weak linkages with research.
- Lack of attention to the needs of disadvantaged group, especially women.
- Poor organizational communications.
- Very limited clientele input in program development.

TRAINING AND VISIT (T&V) SYSTEM OF AGRICULTURAL EXTENSION

The T&V system of extension was developed by Daniel Benor. According to Feder et al. (1985)) the T&V system was first tried in Turkey in the late 1960s and was introduced in most Indian states during the period 1975-85. It has spread rapidly since the mid 1970s through different projects funded by the World Bank in a number of countries of the world. The system has been; put into operation in areas where large number of farmers are cultivating mostly small farms using low-level technology and traditional methods. Under the T&V system, the extension service initially concentrates its efforts on the major crops and on those few aspects of farming which offer greatest scope for increased income.

T&V approach assumes that extension field personnel are poorly trained, not upto-date and professionally incompetent. They tend not to visit farmers, but to stay in their offices instead. It further assumes that management and supervision is in-adequate and the two-way flow of information between research and extension is weak.

MERITS AND DEMERITS OF THE TRAINING AND VISIT SYSTEM (T&V)

Characteristics

- Management reform of general agricultural extension system.
- Structured job assignment for the field staff.
- Fortnightly training.
- Regular unannounced supervisory visits support.
- Heavy emphasis on individual and group approaches tends to be very labour intensive.
- High recurrent operating budget.
- Heavily oriented towards transfer of technology.
- Continues top-down orientation of general agricultural extension system.
- Regular contact with small number of farmers.

Common Weaknesses

- Limited use of mass media.
- Limited or no clientele involvement in program development.
- Recurrent cost problems that become serious when donor funding terminates.

3. PARTICIPATORY APPROACH TO AGRICULTURAL EXTENSION.

Most of the earlier extension models had a tendency towards top-down policy formulation, centralized planning and decision-making, one-way communication, authoritarian leadership and undemocratic hierarchical organizational structures. Experience has shown that the top-down approaches to development create an increasing dependence of the people on the development agencies and on outside sources. In fact, too much dependence on outside sources can easily prevent the emergence of self-reliance. However, the outside assistance is essential to some extent.

Participatory development process, in its early phase generally needs an outside assistance as a catalyst to start the process. Once the development process is started, the local people may take the responsibility to carry it on. Thus, the sustainable rural development can only be achieved through the efforts of the local people themselves

working for their own benefits. Development agencies can assist the process, but they cannot do it themselves.

A participatory approach is characterized by mutual consultation for policy formulation, decentralized planning and decision making, two way communications, non-authoritarian leadership and an informal and democratic organizational structure. The basic principle followed under this strategy is that it starts with what people have and builds on what they know.

Throughout the world there is growing realization that no government or development agency is ever going to develop people; it can only be done by the people themselves perhaps with the assistance of the development agency. There is also strong evidence that when rural people organize for their own benefit, much can be achieved.

MODIFIED PRIMARY APPROACHES -PARTICIPATORY METHOD.

Characteristics

- Participatory methods and mechanism are integral to a demand-driven extension system.
- Participation ensures that extension stays focused on farmers' problems and concerns.
- Participation methods help develop the organizational and leadership skills of farmers.
- Participatory mechanisms include advisory committees that are inter-connected at all levels within the extension system.
- Farmers' participation in program development and implementation is central to the feedback system.
- Helping farmers to organize their own farm organization is essential to effective participation and the development process.
- Farmers' organization leads to empowerment.
- Full and effective participation is synonymous with good extension.

Common Weaknesses

- Participatory approaches are sometimes politicized and rival grouping is developed.
- Advisory committees tend to be dominated by larger commercial farmers unless steps are taken for all target groups to be fully represented.

4. FARMING SYSTEMS RESEARCH / EXTENSION APPROACH.

Agricultural Research, Extension and farming constitute the primary components of the agricultural system. Ideally, these components are mutually interdependent, interrelated and complementary to each other.

The FSR approach evolved in the late 1970s out of the need to make agricultural research and technology generation more relevant to the needs of small farmers, who constitute the vast majority of the agricultural sector of many developing countries.

The FSR approach enables researchers working on farmers' fields to select appropriate technologies to address the real problems that have been identified. In addition, it

provides a practical way of evaluating technologies with farmers within a system context using criteria that are relevant to the farmers.

FSR uses the idea of domains for diagnosis, planning, experimentation and recommendation. A recommendation domain, more specifically, is a group of farmers' who have similar circumstances and for whom it is likely that the same recommendation will be suitable. Recommendation domains may be defined by agro climatic and/or by socio-economic environment. For example, a new variety may be appropriate for all farmers in a given geographical area, whereas a particular fertilizer recommendation may be appropriate only for farmers who follow a certain rotation pattern or whose fields have a certain type of soil. Thus, the recommendation domain for variety would be different from the recommendation domain for fertilizer.

The FSR approach is based on the assumption that technologies, which fit the needs of farmers, are not available and need to be generated locally through a multi-disciplinary team of experts by applying an integrated approach. To achieve this, the agricultural researchers need to interact close with farmers to understand the management of their system as a basis for designing technology. It involves farmers themselves in the identification of their problems and testing the potential solutions under their own conditions.

Characteristics

- FSR/E begins with understanding the existing farming systems and technologies of production.
- FSR/E considers the whole farm situation when developing technical recommendations.
- FSR/E concentrates on developing location specific technology.
- FSR/E modifies recommendations to fit the farmer's resources and conditions of major groups of farmers.
- FSR/E uses farmers' fields as the best laboratory to evaluate new technologies.
- FSR/E helps bridge the gap between research, extension and the farmer.
- The farmer is a full partner in FSR/E.

Common Weaknesses

- FSR/E is marginal to most Agricultural Research organizations; as such programs are under-valued, receive low priority and are poorly funded.
- FSR/E is aimed at technology development and adaptation rather than publish research; therefore, researchers who undertake FSR/E do so at considerable professional risk.
- FSR/E is somewhat more costly than on-station research because it requires transportation, supplies and technical support: FSR/E is sometimes vulnerable to budget cuts.

5. UNIVERSITY BASED EXTENSION.

Characteristics

- Heavily oriented toward educational programs or human resource development.
- Highly client oriented with systematic participation in program development.
- Farmer's priorities are emphasized over government policy objectives.

- Research and extension activities are closely linked through joint appointments or split assignments.

Common Weaknesses

- Weak working relationship between extension and their respective agricultural universities.
- Generally little effort is made by extension system to access the expertise in agricultural Universities.
- University-extension linkage problems generally resulting in degree programs that lack relevance to the agricultural development needs of the country.

6. INTEGRATED RURAL DEVELOPMENT PROGRAM (IRDP).

Characteristics

- Focuses on a broad range of agricultural and rural development objectives beyond mere production increase.
- Includes the delivery of educational programs, resources and services in an integrated package.
- Emphasis is on helping farmers to get organized to access and use resources and services more effectively.
- Field staff is multipurpose agent with broad range of duties.
- More emphasis is on human resource development than on technology transfer.
- Generally more clients oriented than conventional extension approaches.

Common Weaknesses

- Integrated approaches administratively complex, making them difficult to manage effectively.
- Poorly trained middle and lower level system managers generally limit system effectiveness.
- Organization communication is frequently poor which contributes to serious management problems.
- Frequent investment of resources in more traditional technologies resulting in limited payoff for farmers.

7. COMMODITY-BASED EXTENSION

Characteristics

- Vertically integrated production system that can be operated as either public or private enterprises.
- Input supply, credit, extension and marketing services provided a coordinated package to participating farmers in a contiguous area.
- Field agents responsible for providing all services to specific groups of farmers; clear-cut responsibility and accountability.
- Field staff having adequate technical, communication and logistical support; inputs generally available when needed.

- Cost of extension and related services are paid for directly by farmers through the product pricing system.
- Production technology generally is up-to-date, cost effective and appropriate for each agro-ecological zone where the commodity is given.

Common Weaknesses

- Duplication of effort in those areas served by the regular extension service.
- Price fluctuation which can destabilize the system rather quickly, since it's financed from product sales (i.e. it is self- supporting).

8. INPUT SUPPLY SYSTEM.

Characteristics

- Generally a private sector input supply system offering technical advice about the proper use of agricultural inputs (agro-chemicals, seed, or equipment) being sold.
- Cost of technical assistance included in the purchase price of an input with the farmers bearing the cost directly.
- Direct technical assistance provided to farmers by sales personnel who are trained and supported by technical specialists at company headquarters.
- Technical support to farmers generally limited to advice on the purchased input; not extended to a broader range of production and management problems.
- Input supply companies use individual, groups and mass media methods to generate farmer's awareness, interest and use of improved technology.
- The private extension activities are generally better funded than public extension activities.

Common Weaknesses

- Small scale subsistence and disadvantaged farmers not targeted as primary clientele of these technologies transfer efforts.
- Technology primarily developed for the commercial farm sector which tends, overtime, to displace small scale producers.
- Little attention given to low input, sustainable agricultural technologies (environmental and resource conservation technologies).

9. PRIVATE CONSULTANTS

Characteristics

- Private individuals or firms who provide specialized technical and managerial advice and services on a fee basis. This is usually done in the developed countries.
- Generally limited to high value cash or export crops grown by specialized commercial producers.
- Consultants are frequently current or former public sector research or extension personnel who provide these specialized services during off-hours or after retiring from their public sector positions.
- Regular farm visits (weekly, fortnightly or monthly) to provide technical or management services; on immediate call to diagnose and treat specific problems.

Common Weaknesses

- Primarily serve the needs of highly specialized commercial producers; small scale, low resource lack access to these consultancy services.

10. CLIENT-BASED EXTENSION SYSTEM

Characteristics

- Generally operated by Non Governmental Organizations (NGOs) or Private Volunteer Organizations (PVOs) to serve a specific target group such as women farmers, an ethnic minority or another disadvantaged group.
- Concentrate on problem oriented "self-help" approaches that emphasize participatory methods.
- Most personnel are highly committed to their clientele; open and flexible in finding solutions to client problems.
- Most systems lack a strong technical focus but groups get organized to access resources and services.
- Depend largely on privately contributed or donor funds, therefore, most are ad-hoc programs that are seldom institutionalized.

Common weaknesses

- Lack of emphasis on appropriate technology which tends to limit productivity increase among small farm households.
- Tend to be very fragile because of their dependence on external funds.

6. EFFECTIVE COMMUNICATION IN EXTENSION

Extension education is basically a process of communication – communication of ideas and skills between and among people. By sharing of ideas and information and passing on advice, the extension agent hopes to influence the decision of farmers. He may also wish to encourage farmers to communicate with one another. The sharing of problems and ideas is an important stage in planning group or village activities. The extension agent must also be able to communicate with superior officers and other concerned officials like research workers, traders, teachers etc about the situation faced by farmers in his area. There are many ways in which extension agents and farmers communicate.

Communication is not new. It has been happening for thousand of years. The process of communication is as old as the human race. When the need to exchange ideas arose, the art of communication began. Communication is not just talking and listening. Sometimes communication requires no words. One of the most important part of communication is the relationship between the people involved. Successful communication depends on understanding.

Definition of Communication:

The word 'communication' is derived from a latin word communicare which means to pass along, impart or transmit knowledge; to have interchange of thought to make common (communis). Communication in its broader sense is the act of transmitting, imparting and interchanging thoughts, opinions or information through verbal and non-verbal channels i.e. speech, writing and signs. Communication is a system, which facilitates the transfer of information, messages and signals from one person or place to another person or place.

Communication is, therefore, defined as the process of transmitting a message from one source to another source (audience) via a channel.

ELEMENTS OF COMMUNICATION

Any act of communication, be it a speech at a public meeting, a written report, a radio broadcast or a question from a farmer, includes four important elements.

1. The source or where the information or idea comes from:
2. The message, which is the information or idea that is communicated.
3. The channel, which is the way the message is transmitted.
4. The receiver, who is the person for whom the message is intended.

1. Sender

The sender or source can be any person, group or organization who initiates a message. Important qualities of the sender include:

- Communication skills of the sender.
- Ability to think, write, draw and speak.
- Attitude towards the audience and to the,
- Subject matter being addressed.

Sender is also called Encoder, He/She may be a teacher or presenter.

2. Message

The message is the information content that is to be sent from sender to receiver. Factors to consider include:

- ❖ Language of message should be chosen that is understood by the receiver.
- ❖ Selection of message content and its organization should be in acceptable form. If poor choice of language, content, organization or channel is made, the message is more likely to fail.

3. Channel:

The channel or medium is the method by which the message is transferred to the receiver (audience). Fax, telephone, radio, television, telegraph, news papers and magazines etc are important channels of communication. Five senses seeing, hearing, tasting, feeling and smelling help in choosing an appropriate channel according to situation.

4. Receiver

The receiver is the final link in the communication process. The whole communication process aims at the receiver and his understanding of the message. Unless the receiver understands the message, the whole process is useless. The receiver is also called decoder. He may be a learner or evaluator.

Feedback:

When a source (sender) sends a message and receiver (audience) receives the message and responses to it, this response of receiver is called feedback. Feedback results in response like change in knowledge, attitudes, skills and action.

Noise:

Noise is anything, which disturbs the understanding of the message by the receiver. Dim prints, weak voice, disturbance in system, talking during a lecture, a very hot or a very cold room may disturb the listeners. Internal noise arises within the audience or person within the receiver e.g. illness, fever ache, flu etc due to which he cannot listen properly. Noise may be classified as physical noise e.g. breaks in telephone, radio system; psychological noise and semantic i.e. speaker and listener assigning different meanings.

PROCESS OF COMMUNICATION

Who says what to whom through which channel with what effect. Many models of communications have been developed to understand the process of communication of which Berlow's model is extensively acceptable. The model is called SMCR model.

SENDER ---------- Message ---------- Channel ---------- Receiver
Sends through to

Example:

I am speaking to you. I am sender, my words are message - my voice is the channel and you are the receiver.

When I speak it is called Coding the message and when you receive the message and understand it, it is called Decoding of message.

Purpose of Communication

Purpose of communication may be for

- ❖ Persuading for action – changing attitudes.
- ❖ Helping a person or organization.
- ❖ Discovering something – information about persons, things.

FORMS OF COMMUNICATION

1. Intrapersonal.
2. Interpersonal
3. Group communication
4. Mass communication

1. Intrapersonal Communication

Intrapersonal communication involves only one person. Our thoughts, talking with ourselves or analyzing things in our minds are the examples of intrapersonal communication. Every thing first starts from the human mind and then comes out for discussion, debate or any other purpose.

2. Interpersonal Communication

Interpersonal communication involves two persons – one individual is talking, discussing or arguing with another individual. A one to one speaking situation includes formal interview between two persons. The purpose may be giving information, getting information, persuading, problem solving, counseling or just chatting. This method is commonly used in extension work but it is very time consuming.

3. Group Communication

It involves an individual talking to a group of people or a group discussing problems with one another. An extension worker delivering a lecture to a group of farmers; a teacher delivering a lecture to students in a class are typical examples of group communication.

4. Mass Communication

Mass communication involves the communication or communicators with a large number of people. Address on radio, TV or at public place to a large gathering is an example of Mass communication. Mass communicator method is time and resource saving as a

message can be conveyed rapidly to a large number of audience at a time while interpersonal and group communication methods need more time and resources. In extension, combined methods are used according to situation.

VERBAL AND NONVERBAL COMMUNICATION

Verbal communication: Communication in which spoken and written words are used.

Nonverbal Communication: In this type of communication, words are not used rather body gestures, music, colours, facial expressions etc are used.

TECHNIQUES FOR EFFECTIVE INTERPERSONAL COMMUNICATION

1. An extension worker must develop an understanding of communication, its process and other important aspects.

2. The language must be suitable, clear, and simple.

3. Verbal and nonverbal communication must coincide. Your facial expression and body gestures must relate with your verbal message.

4. Never try to keep a distance of status between yourself and the farmer. Consider yourself as one of them.

5. Try to listen and understand the view of the audience.

6. Avoid stereo type ways of thinking and judgement. Develop your own ideas about the audience.

7. Show interest in the problems of your audience (farmer).

8. Respect your audience, their beliefs, ethnic group.

9. You must gain the confidence and rapport of your audience.

10. Do not impose yourself on others.

PUBLIC SPEAKING

Public speaking is a form of group communication with a sender – message – channel – receiver structure. When a person plans to speak to a group, he has a predetermined purpose in mind. Whatever the purpose, he has to get and sustain attention of his audience. The continuity of speech should not be disturbed by poor voice quality, faulty microphone, delivery of un-related material, redundant details or inconvenience in the physical arrangement of the room. To avoid all these, there are some basic principles of speaking, which can be identified and applied. These are given below.

A: The Speech

1. **Control the setting:** Through seating arrangement, lighting, visual aids heating, and cooling system and other facilities try to provide comfort to the listeners (audience). Likewise check the arrangements in open place if you are going to deliver speech in the field.

2. **Control the Topic:** Control and arrange the topic of your talk according to the time allotted. It should have a clear beginning, middle and end.

3. **Know your Topic Thoroughly:** Make a list of four or five main points you want listeners to understand and remember and build your speech around them. Avoid unnecessary details, too many figures and un-related stories. Flash out main ideas with proper examples. Be careful with data. Use rounded numbers.

4. **Analyze your Audience:** Before you prepare speech, try to find out who your audience are, what they know about your subject or topic and what attitudes they may have about it. The best trait for you is Empathy i.e. your ability to participate in another's feelings and ideas. Always arrive earlier than your audience.

5. **Begin with an attention glitter:** It includes a big chart, stating a strong quotation asking a question, or telling a humorous incident directly related with your subject. Try to avoid un-necessary jokes.

6. **End your speech strongly:** You must end with a sound conclusion. You can finish with a summary or a challenge, an appeal for action, a quotation or referring to your opening point or theme.

B Voice and Delivery

1. **Enunciate:** Pronounce words distinctly - articulate clearly so that audience understands your message.

2. **Project your Voice:** It is important to speak loudly so that your voice travels to all parts of the room.

3. **Control your Voice:** Nervousness makes some people speak faster than normal with less control. Do not rush your delivery. Above all do not let your voice drop off at any stage. All audience should listen to you properly.

4. **Put feeling in your Voice:** Practice thinking and speaking emotions appropriate to your message. Let your facial expressions match your tone. Be natural; sincerity and enthusiasm can overcome a lack of skill and experience.

5. **Appear natural but confident:** When you are introduced, the audience will be watching you. Your gestures should be natural, avoid overacting.

6. **Use notes:** Never memorize a speech. Talk from an outline or from a complete script.

7. **Practice:** Before actual speech try to rehearse it at least once. To improve your speaking skills get a tape recorder, listen to the recorded speech and make corrections.

The process of listening

We listen frequently in daily life. We listen to radio, friends, people around us, singing birds, and in lectures we listen to the presenter and so on. Research shows that listening occupies more time that any other communication activity.

Listening consists of five steps.

1. **Receiving:** Hearing begins and ends in this first stage. Hearing is something that just happens. When we open our ears listening begins (but does not end) with receiving the message the speaker sends. At this stage, we note what is said and what is omitted. For receiving message, be attentive and avoid interruptions.

2. **Understanding:** Understanding is the stage, at which we learn, what the speaker means.

3. **Remembering:** Messages that we receive and understand need to be retained for at least some period of time.

4. **Evaluating:** It consists of judging the message in someway.

5. **Responding:** It occurs in two phases.
   i. Response we make while speaker is talking.
   ii. Responses we make after the speaker has stopped. These responses are feedback.

IMPROVING LISTENING ABILITIES

- Speak less
- Avoid making decisions in urgency
- Try to read nonverbal communication
- Give attention to that you can learn
- Write down the important points
- Let the one talking, finish his point
- Ask questions

Advantages of Active Listening

- It prevents mistakes and wrong statements
- It is effective in increasing the levels of relationship and confidence
- It is effective for reducing the chances of conflict and improving the team work

General Hurdles to Active Listening

1. Habits

- Tendency to make conclusions without complete details
- Abruptly changing the topic
- Changing the attention of the speaker.

2. Surroundings

Noise, restlessness, quickly changing scenes in front of our eyes, fatigue and lack of privacy also create hurdles in listening.

3. Competition

Desire and effort to dominate the discussion forces you to think about what could be said and thus takes attention away from listening.

COMMON MISTAKES IN COMMUNICATION

1. **Failing to listen well:** Most people are poor listeners. Some people speak more which should be avoided to become a good listener.

2. **Failing to use the 'you' approach:** People are interested in what is in it for them and not for the organization. When speaker uses the term 'you' people understand that the speaker understands their problems and needs.

3. **Sending the wrong nonverbal signals:** Experts say that 65% of a message is conveyed nonverbally in face to face communication. People look at body position and movement, gestures, facial expressions, eye contact, silence and so on.

4. **Failing to write to be understood:** Many people write to impress, not to express. They use long sentences and difficult words, which are not understandable by common man.

5. **Lacking knowledge of Audiences:** Communicators must develop messages appropriate to the needs and requirement of their audiences. Communicators should know educational levels, occupations, beliefs and attitudes, group loyalties and norms of the audiences.

6. **Failing to realize that communication is a two way process:** Many think that communication is finished when information is passed. They fail to get feedback for evaluation.

7. **Failing to observe common courtesies:** Communicators should treat the audience courteously. Be polite. Audience will listen to them. Rudeness of communicators is a cause of their failure.

NONVERBAL COMMUNICATION

Communication without words is called nonverbal communication. Nonverbal communication includes body gestures, facial expressions, colours, hand motions, aggression, fear, joy, anger, arrogance etc. In our daily life nonverbal communication is used along with verbal communication.

Some cultural meanings of colours

RED: In china red signifies prosperity. In France and UK, masculinity. In many African countries, death. In Japan it signifies anger and danger.

GREEN: In USA, it signifies capitalism, go ahead. In Ireland, patriotism. Among some native Americans, femininity. To the Egyptians, fertility and strength and to Japanese, youth and energy.

BLACK: In Thailand, it signifies old age. In parts of Malaysia, courage and in much of Europe, death.

WHITE: Thailand, purity. In many Muslim countries and Hindu cultures, purity and peace and Japan and other Asian countries, death and mourning.

BLUE: Iran, something negative. Egypt, truth and Ghana, joy.

YELLOW: China, wealth and authority. USA, cautions. Egypt, happiness and prosperity. In many countries of the world, femininity.

PURPLE: Latin America, death. Europe, royalty. Egypt, virtue and faith. Japan, grace and nobility and in China, barbarism.

EFFECTIVENESS OF COMMUNICATION: If communication has to be effective, it must be in local language and idiom. Social norms, cultural beliefs and sensitivities of communities must be kept in mind. Above all, communication programs must give space for interaction, clarifying doubts, addressing misgiving on various issues.

7. ADULT EDUCATION

INTRODUCTION

Adults' education is termed as "Any voluntary, purposeful effort towards self development for adults, conducted by public and private agency directed towards such specialized subject as citizenship, consumers problems and farming problems etc. To understand adult learning we need to know its connection to learning in childhood and adolescence.

The success of adult education depends upon the motivation of adults to participate in the programme. It can only be possible with the participatory approach and it is also important for the Extension worker to perform their tools in accordance with the preferences and needs of the farmers and make sure that the innovations introduced are understandable, convincing and cost effective so that they can be easily adapted by the farming community. In order to achieve the goal it is essential for Extension worker to know the concepts of adult education, the characteristics and needs of adult learners.

Aims of adult education

1- Adult education is to get definite access to education by men and women who are no longer of school age and young people who for various reasons, have not had the opportunity to attend school.

2- By this way each individual is provided an opportunity to supplement his store of knowledge throughout the course of his life.

Needs for Adult Educational programme

Some fundamental reasons for the need for adult education programme are:

1. Changes in technology and other aspects of life are occurring so rapidly that any delay in their option can put an individual or a nation years back, therefore, education of adults is essential.
2. Adult education is more effective than traditional education because its clients are adults. Although adults have decreasing memorizing ability, their understanding level is surely enhanced.
3. Adult knowledge is unlimited and needs to be updated as each individual has the opportunity and responsibility to select and master portion of new knowledge that is of most use to him according to his current situation.
4. The problems faced by our community are mostly at the adult level; therefore adults must step forward and try to solve the problems faced by their own generation.
5. Education is a continuous process and should never be disrupted; only that individual is competent who has kept himself continuously updated with new knowledge.
6. In order to make adults responsible their individual and indigenous knowledge is also important and if incorporated with modern innovations it will prove effective. It also integrates new knowledge with previous knowledge.
7. Motivating rural adults. This is the most important aspect of adult learning. At least six factors serve as source of motivation for adult learning.

i- **Social relationship.** To make new friends to meet a need for associations and friendship.

ii- **External Expectations.** To comply with instructions from someone else, to fulfill the expectations or recommendations of someone with formal authority.

iii- **Social welfare.** To improve the ability to save mankind, prepare for service to the community and improve the ability to participate in community work.

iv- **Personal advancement.** To achieve higher status in a job, secure professional advancement, and stay abreast of competitors.

v- **Escape/Stimulation** To relieve boredom adult learning provides a break in the routine of home or work, and provides adults a contrast to other exciting details of life.

vi- **Cognitive Interest.** To learn for the sake of learning, seek knowledge for its own sake and to satisfy an inquisitive mind.

Objectives of Educational Programs of Adult Farming

1. Encourage both beginners and experienced farmers to adopt improved and modern technology which has already been tested in their conditions.
2. Encourage farmers to produce farm commodities effectively so that they may be able to harvest the result of activity effectively.
3. Marketing of farm produce effectively. Most of the farmers lose their commodities because of non-availability of information about Market; therefore, they must devise methods according to their own environment.
4. To increase interest, knowledge and understanding regarding safety, health and physical fitness of the farmers.
5. Skill development of farmers through participation in the educative process for obtaining best results.
6. Organization of farmers and their participation in social, religious and economic activities.
7. Leadership development in rural adults and the sense of self help development, which is helpful in poverty alleviation.
8. Due to education learning process, it develops and encourages the adults to adopt it effectively.
9. Consume social and other material resources wisely and maintain a favorable physical and social environment.
10. Develop the consciousness of adult farmers regarding their civic responsibility in their local community, the nation and the world, and the ability to participate in discharging it and also to develop consciousness of the value of democracy.
11. Develop ability to live happily on the farm and as a member of the farm family.
12. Develop abilities which will result in making a farm a better place to live and develop abilities which will improve the management of the farm business.

13. Provide up-to-date information involving approved practices pertaining to farmers.

Factors Affecting Adult Learning

1- Numerous responsibilities (families' career, social commitments etc).
2- Lack of time.
3- Lack of money.
4- Lack of childcare.
5- Scheduling problems.
6- Transportation problems.
7- Insufficient confidence.
8- Having to learn, if told by boss.
9- Age.
10- Intelligence.
11- Environment of learning.
12- Transfer of learning.
13- Learning of reasoning and understanding.

Characteristics of Learning

1. **Learning should be meaningful**: - The farmer will understand the value of things learned or taught to him only when he can see their utility in practical life.
2. **The maximum number of senses of the learners should be involved in learning**: - Seeing, hearing, touching, smelling and tasting are the five (5) senses through which an individual learns new ideas.
3. **Learning should develop functional understanding of learners**; - The idea after understanding by the farmers can be utilized effectively. Thus, idea may be understandable by farmers.
4. **Learning is affected by physical and social environment:** - Physical environment includes temperature, light, aeration and seating arrangement. The social environment and the mental make up of audience are closely associated.
5. **Learning ability varies among individuals**: - There exists wide variations of Intelligent Quotient (I.Q) level, interest's attitudes and aptitudes of individual farmers. Therefore, a better communication process should be adopted by extension worker.
6. **Learning is a gradual process**: - To take the idea, extension workers should first try to get farmers interested in an idea, and then hopefully they will gradually be convinced of its usefulness.
7. **Adults can learn new things**: - Adult education programmes are based on the assumption that adults have the capacity to learn new things. It depends on

the age of adults as some individuals are reluctant to learn because of fears of failure, old habits, and the impact of a particular ideology.

8. **Learning is an active process on the part of the learner**: - The Extension worker can create an atmosphere for learning, but the farmer will have to learn by his own efforts.

9. **Learning requires effective communication:** - For effective adult education, skillful communication is necessary.

10. **Theory and practical should be related in learning:** - There should be a balance between the two. To acquire real professional competence, it is necessary to know both theory and practical. The farmers should be taught both.

Effective Teaching and Learning.

According to Mosher the following generalizations about adult learning can help guide extension workers in their work with farmers.

1. **People learn better through repetition:** - It is not enough to talk with a farmer about a particular changed practice just once, but it can be effective if repeated.

2. **People learn only after their interest is aroused:** - Extension worker should plan well ahead of time, several weeks, or even months before trying to teach anything, so that he can win peoples' interest in the topic.

3. **Immediate use of new technology/knowledge enhance the farmers' level and speech of learning:-** Extension worker should arrange his programme in such a way so that he can give farmers an opportunity to learn how to operationalize just before it is to be performed.

4. **Adults learn more easily from "reciprocal challenge than from teachers or extension workers;-** Extension workers should never try to establish superiority of their knowledge to that of farmers. They should grasp every opportunity to let the farmers know that they are also learning from the farmers.

5. **Adults learn more easily when no other urgent task is immediately pressing:-** No extension teaching programme should be arranged for the farmers when they are engaged in other urgent works.

6. **People of all ages learn more rapidly when a variety of different teaching methods are used:-** It is up to Extension worker to select those methods which can be effective in each specific situation and for each specific farmer or group of farmers.

Stages in Adoption of Idea.

According to Supe (1987), there are six steps in the learning process.

1- **Attention:** - Attention is the starting point for the arousal of interest in adopting new ideas, and lack of interest leads to failure of any new programme.

2- **Interest:** - The Extension Workers present the message attractively and in such a manner that require little mental effort on the part of the learner. Therefore, presenting clear and specific ideas, once at a time is an important factor in building interest.

3- **Desire:-** Desire is of prime importance. Therefore, the Extension Workers must convert the interest of farmers into a desire and preparedness for action .which will ultimately satisfy his needs or wants.

4- **Conviction:-** The Extension Workers must see that they are equipped with all the necessary information and for the final stage of adoptions i.e. action.

5- **Action:-** Extension Workers must anticipate difficulties and blocks that can arise, and help the farmers remove or bypass them. The Extension Workers must stand by the farmers at every stage of the process of adoption.

6- **Satisfaction:-** The end product of teaching efforts is the satisfaction that comes to the learner as a result of solving a problem merely a need, acquiring a new skill, or some other changes in the behaviour.

8. DIFFUSION AND ADOPTION PROCESS

Key words:

Diffusion: The process by which innovation spreads to the members of a social system.

Innovation It is an idea, practice or object perceived as new by an individual.

Adoption: To start to use a particular method or to show a positive attitude towards it.

Information comes from various sources. People react to it in different ways. One may not react to it at all or he may try to learn it for use at some later stage. Consciously or unconsciously, every person goes through certain mental steps before changing his ideas or practices. The wise extension worker understands this process and fits his teaching into the present thinking of his audience. An individual learns and changes in stages. These stages are:

(Introduced in 1955)

Stage-I : Awareness
Stage-II : Interest
Stage-III : Evaluation
Stage-IV : Trial; and
Stage-V : Adoption or Rejection

1. **Awareness:**

   At first, information is quite incomplete. An individual learns of the existence of the innovation and gains some understanding of its functions. Awareness may come from the mass media, neighbors, friends or relatives who know about innovation. Reading, learning and seeing play an important role in it.

2. **Interest:**

   Interest is an outgrowth of awareness. At this stage the individual begins to search actively for further information about the new idea, role, innovation or skill. If the idea fits the situation, and the information seems rewarding to the learner. he may go on to the evaluation stage.

3. **Evaluation:**

At this stage the learner begins to analyze the information that interests him. In evaluating the information the learner has some answerable questions like: 1. Will it work?. 2. How well will it work? 3. Can I do it? 4. How difficult is this? 5. What If I don't? 6. Are others doing it? 7. Can I afford it?. 8. What other things will I have to do in order to do this? And, 9. Will it take too much time? etc. He may also think of neighbors, friends, and relatives whether they would think if it is the right thing.

4. Trial:

At this stage of learning, the learner puts the information into limited practice. He may try out a new crop variety, livestock enterprise plan, or a new piece of equipment. The trial must be successful and the educator (extension agent) must help the learner most failure. Personal help to ensure successful application at the time of trial is most helpful.

5. **Adoption:**

Adoption of information or new method is dependant upon successful trial. If it works well for the learner, the adoption may follow. Continuing adoption is the result of successful trial, along with the continuing assurance, observation and help of the educator. The educator must not let the learner fail.

A revised model has also been developed in 1971 which has the following four steps.

1. Knowledge. 2. Persuasion. 3. Decision. and 4. Confirmation.

INNOVATIONS

Generally innovations may be classified into two categories.

1. Social Innovations, and 2. Technical innovations.

Agricultural innovations usually fall under the technical category and range from simple to modified farm practices as well as completely new technology.

Innovations have five characteristics from the farmer's point of view which affect their rate of adoption. They are:

1. Relative advantage
2. Compatibility
3. Complexity
4. Triableness, and
5. Observational

1. Relative Advantage

This is the degree to which an innovation is recognized as better than the present practice. It is usually expressed in terms of economic gain.

2. Compatibility

It is the degree to which the farmer perceives an innovation to be consistent with his values, his management objectives, level of technology and the stage of farm development.

3. Complexity.

This is the degree to which an innovation is understood and can be used by farmers. In case of a mechanical device (tractor or pump) complexity can be a barrier to adoption if servicing and spare parts are not available locally.

4. Triable

If a farmer can try out an innovation without spending too much money, he may adopt it more quickly.

5. Observable.

It is the degree to which results of an innovation are visible to farmers.

ADOPTERS CATEGORIES

Studies show that all persons in an area do not adopt new practices immediately nor at the same time. Instead practices spread gradually among farmers. This is true every where.

According to a research, adopters are categorized as:

1.	Innovators	2.5%
2.	Early Adopters	13.5%
3.	Early majority	34%
5.	Late majority	34%
6.	Late adopters	16% also called laggards.

1. Innovators.

The Innovators are the first in their groups or community to bring in or adopt a new idea or practice. Innovators are very few, especially in societies bound by traditions. They have large than average holdings, greater wealth, better education, and a venturesome (ready to take risk) spirit. They are willing to experiment and risk failure on the chance of substantial personal gain. In a research study only 2.5% of innovators were found.

2. Early Adopters

The early adopter is quick to see the values of a new practice in his community and will try it if he feels it has a fair chance of success. He is usually younger than average, has higher education, is socially active and reads more than later adopters. They numbered 13.5% in the sample.

3. Early Majority

They are average aged, experienced and educated, highly respected in their communities and adopt a practice only after they are convinced of its value. They were 34% according to the research findings.

4. **Late Majority**

They are relatively large in number in the community. They are more conservative, less wealthy and adopt a practice only when it is generally acceptable by the community. They were also 34% of the total sample.

5. **The Late Adopters**:

The late adopters or laggards are characterized by their conservation, older than average and seldom take any risk. They numbered 16%.

Extension agents are required to know their audience (farmers and their families) and their attitudes towards change. This knowledge should be applied in planning programs to reach specific categories of farmers, in deciding which extension method to use at different stages of program development and in selecting and training leaders.

Studies have shown that innovators may not be the best leaders. They are far too advanced. Majority of farmers have no approach to them and do not create frequent interactions with them. Most often, the early adopters are the natural community leaders. People learn from demonstration on their farm. They are more practical in progressive communities. Usually young people take lead. In communities slower to change, the early majority or even late majority adopters have more influence in diffusing new ideas, especially among older people.

COLLECTIVE INNOVATION DECISION

In the adoption process, individuals take lead but when good effects of a new idea reach an active group of people in a community, they also take steps to own new findings and bring change in their existing practice. They make collective decisions through consensus. However, this is not practiced on a large scale due to our social barriers i.e. inter-kinship rivalries, conflicts and difference of opinion amongst farmers. In spite of these hurdles some progress has been made especially in farming water users associations to adopt judicious use of water practices through lined channels.

Collective decision making consists of the following sub-processes.

a. **Stimulation:** Stimulation is the stage at which someone becomes aware that a need exists for a certain innovation. Stimulator is usually an outsider or a member of the community who is oriented to the new ideas.

b. **Initiation:** Initiation is the sub-process by which the new ideas receive increased attention by members of the social system and is further adapted to the needs of the community. The role of initiator requires intimate knowledge of new ideas.

c. **Legitimation:** This is the sub-process in collective decision making at which the innovation is approved by those who represent the community. Legitimists usually hold power in the community.

d. **Participation:** In spite of consensus in the decision, the action process may not proceed itself until and unless the farming community fully participates in all the processes of change. Extension agents have to work hard to promote participation of farmers in the change process and development activities. Farmers organizations, commodity growers associations and water users associations are some well known examples of participation.

9. PREPARING EXTENSION REPORTS

INTRODUCTION

Report writing is usually considered a difficult job. A report is to be written systematically at every step/process, and is written and completed by the one who has the relevant information. Hence it is easier, systematic and a continuous activity to be performed suitably by the one undertaking the activity itself.

Writing is the process of defining what one means to say accurately and without ambiguity. It consists of satisfying reader's expectations in three areas (1) Subject matter (2) Expression (3) and arrangement of the material.

It has been defined by (Zall) as a medium of communicating a set of ideas from a writer's mind to a reader's mind" (Zall).

A standard reporting system requires that all staff members at each organizational level use identical forms in their reporting. Further, in a standard reporting system all staff members must have the same understanding of the type of information to be recorded in each section of the report.

The extension worker in initial stages may develop some hesitation for one reason or another to report what he is actually doing, but in the long run he has to report his performance to express and justify his existence in the organization. His importance is realized when this type of information is recorded and forwarded to others in the form of a proper format and at a proper interval.

Self appraisal and intelligent planning

The primary objective of extension programme is to help people/farmers to develop and increase their skill to bring a change on their own. When the desired changes are achieved and the living conditions of the people improved then this type of change gets momentum. Weaknesses or shortcomings are also seen in these changes and those which need improvement in future are recorded. This type of information when properly recorded helps in intelligent future planning and also works as a self appraisal of the Extension workers.

Supervisors' Appraisal of Workers

Appraisal of workers is an incentive for best performance which further motivates individual workers to do their best to win credit from their supervisors as well as public. This depends on how best an extension worker discharges his duties and simultaneously records and reports to his superiors.

Planning the Supervisory Programme

Besides the performance and achievements of workers, the supervisor plans his future programme of activities. From these reports he depicts the area where more attention and efforts are needed and where his less attendance and participation is required. However, the basic role is played by the individual's reports from which the supervisor realizes his requirement of presence or interference to support and guide the field worker.

Director's Guidance of the overall programme and Organization.

The Director's role is the overall responsibility for guidance in the programme implementation at all levels. In early stages of development when the set up of the organization is small, he can make frequent visits and give guidance for carrying out

various activities. In such situations the Director is well informed about the field situation. When the organization, its functions and duties are expanded, then it becomes impossible for the Director to make visits and meet the individual workers. Then he switches over to rely on the reports furnished by the extension workers. Ultimately he depends on the reports received from field workers and makes his programme on the basis of these reports received from field.

Background for New Workers and Supervisors

Periodical posting, transfer of extension staff is a common phenomena in the Extension organizational set up. When the new workers and supervisors assume duties in such a situation it becomes difficult for the new comers to know where to start from. Details of the people, farming situation and various activities carried over and in operation, if kept in proper format, facilitate the work of new workers and supervisors in the new places of postings.

Justifying Public Expenditure and Supporting Budget Request

In countries where the Extension organization has developed and is functioning in an organized manner, depends for its future existence on public funds. To justify the past expenditures and support the future request, the administrative department must furnish a detailed and comprehensive report to the Government to justify the past expenditures and make necessary allocation for the future requests for its various activities carried out in the field at different levels.

Securing Public Support and Request

The extension organization primarily works in the rural areas and deals with farming community with a lot of variable demands and interest groups. When the extension organization and its workers work to the satisfaction of their clienteles, then their image is developed and gets a sound footing or base in that society. When such achievements are reported in a convincing / befitting manner to that society or the public in general then the organization gets the support from public for justification of budget allocation and its expenditure on further improvement of various on going activities in the field.

Recording time trends

When the extension work has been carried out in a specified period of time, some changes might have occurred in the behaviour and trend of those people. In such circumstances, the extension worker switches over to some other function for bringing desirable changes in that locality. As such, when this type of development takes place the peoples trends change with the period of time.

Developing an Effective Reporting System

Extension programmes are usually developed in a manner to bring a desirable change in a society or country as a whole. When such programmes or activities are implemented, they bring some development and change in that society or country. This change or development is to be reported one way or the other so that the executor and the beneficiaries both realize the full understanding of the programmes effectiveness and extension organization.

Need for a Standard Reporting System

Need for a standard reporting system is revealed from the values and uses of reports. The materials contained in a national report of extension come from the reports of local Agriculture Extension workers, supervisors and directors. Therefore, all the relevant information gathered and summarized into figures and statements to depict the national result of extension activities and achievements must be compatible. In case of any deviation/variation in these figures and statements will show that the information is not valid. Therefore, great care is needed to develop a standard reporting format which is to be circulated from the top to the bottom level where all relevant information may be recorded by concerned agents.

Steps in developing an effective standard reporting system

1. Ist step is to analyze the Extension organization and its method of operation.
2. 2nd step is that the existing reporting system in use needs careful study. The reports being prepared at each level contain the information needed by the functionary of a position, planning future activities and information for his area of operation.

   - Reports contain information needed for the next higher level staff member.
   - The national reports contain sufficient information to justify past expenditure, support request for appropriations etc.
   - All items in each report are fully defined.
   - All persons involved in preparing report understand the need for it and why it is needed.
   - All the workers at the same level report in the same pattern.
   - Deciding whether the report is to be modified by deleting some item without touching its effectiveness.

     1. Information needed by the central office must be determined.
     2. Main office will need to plan their activities and the reports needed.
     3. This type of procedure should also be adopted by the lower level offices.
     4. The information collected from conferences, correspondence, field trips and other Government agencies should be incorporated in the reports in a best way.
     5. Report depicting figures and narrative outlines for each level should be prepared.
     6. Detailed instructions and definitions for each statement must be clarified.
     7. Representative of Administrative office should explain the system to Directors, Supervisors etc and representatives of planning to put the system in operation and train the workers for making proper reporting.
     8. Determining how frequently reports should be prepared.

Reporting is a basic requirement of organizations so that the seniors know about the activities in some format. In the initial period of a project these reports are needed at short interval i.e. 15 days and monthly basis but later on when the organization is established and each worker is acquainted with his assignment then the schedule of

reporting may be changed according to requirements. However, these reports should be brief and based on seasonal basis. A suggested outline for a well established and developed extension service is shown below.

Staff member	Report period	To whom report is submitted
Agent	Monthly	Supervisor
	Yearly	Supervisor
Supervisor	Quarterly	Director
	Yearly	Director
Director	Yearly	Administrator

Fixing time for closing a report is of highest importance, especially for administration policy makers to show their physical achievements and justify their expenditure and requests for new and additional budget requirements. However, the closing of crop season is important for reporting.

Kind of Reports

In any reporting system both short and long term reporting will be required from the extension worker at lower level since the supervisors are in need of such reports for their programming and planning activities to keep their field information up-to-date and effective.

- Short term reports submitted either fortnightly or monthly are mainly operational i.e. most of the information is derived from the work done by the field staff and others.
- Long term reports are quarterly or annual, which contain achievements according to objectives. These reports also point out desirable changes to be brought by extension organization in the lights of the achievements made.

Forms of Reporting

The reports must be understandable, clearly showing the solid work done both in figures and statements.

Essential information is reported in statistical form showing achievements quantitatively against targets fixed while other related facts and additional information is reported in the statement form in the reports.

Contents of Reports

Usually the statistical figures give a clear picture of achievements. For the sake of convenience it is divided into sub-sections according to requirements.

Records Needed in Preparing Reports

For preparing reports the maintenance of record is of primary importance. A field worker keeping a record of his daily work done in a systematic manner faces no difficulty in

reporting his performance of achievements on fortnightly or monthly basis. Different types of records are helpful in preparing reports which are:

- Organizational record.
- Project or line of work records.
- Record of Coordination with other departments or agencies.
- Daily activities records.

A proper record maintenance of report is very important for future reporting and any change for improvement in the reporting system.

Report and Record forms

Preparing standard report forms is essential for good reporting system. The person preparing report will have less difficulty for including needed information in the report if an adequate form is available. Summarizing the workers reports to make an area report and its subsequent use for preparation of regional and national report is greatly simplified and standardized for bringing uniformity in the reports. Suitable forms should be prepared and put into use in the field for a trial period. After the trial period the forms should be carefully studied and improved for regular use.

Importance of Record Keeping

A record of report is very essential for future references. The record keepers should maintain the record in such a way that any information needed out of the reports should be easily made available to the users as and when required.

10. METHODS OF INFLUENCING HUMAN BEHAVIOR

Human behavior is how human beings do things in a particular way i.e. in good or bad way. Politeness, sincerity, truth, respect to others are good human behaviors. Rudeness, cheating, telling a lie, disrespecting others are bad behaviors.

Extension work deals with changing human behavior for adopting new technology through effective communication. No one changes its behavior abruptly. It involves a process and appropriate methods to change behavior of human beings.

These methods are:

1. **Compulsion or coercion:** Power is exerted by an authority, forcing somebody to do something. The person applying coercive power requires the following conditions.

    a. He must have sufficient power
    b. He must know how can he achieve his goals and
    c. He must be able to check whether the person coerced is behaving in the desired manner.

Application of coercer power means that the person applying the power is responsible for the behavior of the person he is trying to change. It is possible to achieve change in behaviour with a large number of people in a relatively short time using this method.

Many government regulations and laws relating to public health, traffic control, check on adulteration in agricultural inputs i.e. fertilizers, pesticides etc are of this type. Dairy Inspectors sometimes have to coerce dairy farmers to follow more hygienic practices in their milking sheds.

2. **Exchange:** Goods or services are exchanged between two individuals or groups The conditions necessary for applying this method are that:
    - ❖ Each party in the exchange process considers the transaction in their favour.
    - ❖ Each has the goods or services desired by the other; and
    - ❖ Each can only deliver his part when the exchange goods or services have been delivered by the other, or he can trust that this will be done.

Exchange is often a very efficient method for meeting the needs and interests of different groups, parties or individuals. However, it is not always efficient or fair.

3. **Advice:** Advice is given on which solution to choose from for a certain problem. We can use this method if:
    a. The farmer agrees with us about the nature of his problem and the criteria for choosing a correct solution.
    b. We know enough about the farmer's situation and have adequate information to solve his problem in a way that has been tested scientifically or in practice.
    c. The farmer is confident that we can and will help him with a solution to his problem.

d. We don't think it is necessary or possible for the farmer to solve the problem himself and;
e. The farmer has sufficient means at his disposal to carryout the advice.

The advisor is responsible for the quality of his advice.

4 **Openly influencing a farmer's knowledge level and attitudes:** This method may be applied when:

a. We believe the farmer cannot solve his own problem because he has insufficient or incorrect knowledge and or his attitudes do not match his goals.
b. We consider that farmer can solve his own problem if he has more knowledge or has changed his attitude.
c. We are prepared to help the farmer collect more and better knowledge to help him change his attitude.
d. We have this knowledge or know how to get it.
e. We can use teaching methods to transmit this knowledge or to influence the farmer's attitude.
f. The farmer trusts our experts and motives and is prepared to cooperate with us in our task of changing his knowledge or attitude.

It is possible to achieve long term behavior change using this method.

5. **Manipulation:** Influencing the farmer's knowledge level and attitude without the farmer being aware. Conditions for using this method are:

a. We must believe it is necessary and desirable for the farmer to change his behavior in a certain direction.
b. We think it is unnecessary or undesirable for him to make independent decisions.
c. We control the techniques to influence farmer without him being aware of it; and
d. The farmer does not actively object to being influenced in this way.

In this situation the person or organization exerting influence bears responsibility for the consequence of their actions. Extension has an important role to play in making the farmers aware of the people who for financial gains will use subtle or hidden attempts to influence them.

6. **Providing Means:** We can apply this method under the following conditions:

a. The farmer is trying to achieve certain goals which we consider to be appropriate.
b. The farmer does not have the means available to achieve these goals, or he does not wish to risk using these means; and
c. We have these means and are prepared to make them available to the farmer on a temporary or permanent basis. Specific means in agriculture

include long and short-term credit for the purchase of inputs, farm machinery and production subsidies etc.

Government departments and banks use this method for making financial and physical means available to farmers.

7. **Providing Service:** This may involve taking over certain tasks from the farmers. This method can be used if:

   a. We have the knowledge and/or means available to perform the task better or more economically than the farmer.
   b. We agree with the farmer that it is useful to perform these tasks; and
   c. We are prepared to perform them for him.

In advanced countries the farmers have to provide information to the government regarding income, resources, and statistical returns for livestock number, crop production etc in a very long and complicated form. Extension agent can help them in filling these returns. This is not common in our situations.

8. **Changing the Farmer's social and economic structure:** Methods for this aspect may be an important means of influence when:

   a. We agree with the farmer about his optimal behavior.
   b. The farmer is not in a position to behave in this way because of barriers in the economic and/or social structure.
   c. We consider changes in this structure to be desirable.
   d. We have the freedom of work towards these changes; and
   e. We are in a position to do this, either through power or by conviction.

Extension agents can help farmers understand how economic and social structures influence their prospects for making a better living and enjoying a more comfortable style of life.

11. USING INDIGENOUS KNOWLEDGE IN AGRICULTURAL DEVELOPMENT

It is a general understanding that technology is generated at Agricultural Research Stations and then transferred to the farmers through extension agents. Research Scientists have reported that most of the research experiments have been designed on the basis of farmers' knowledge and practices which are in use since centuries. If research scientists direct them to follow modern practices through extension, it is also true that most of this knowledge is learnt from the local farming communities. In the present era there is a rapid shift from the traditional approach of top down to bottom up, why? This is because farmers' fields are the source of knowledge and much is learnt from there to form research policies and prepare plans in consultation with these farmers.

The World Bank and other organizations working to promote agriculture in various countries have realized the importance of indigenous knowledge of agriculture and utilizing it in their research programs.

The belief that indigenous knowledge systems are simple and static is changing rapidly. In many areas simple local technologies have very complex and sophisticated knowledge about their natural resources. All systems are dynamic i.e. subject to change or adaptation. Change is brought in local technologies through local experiments by the people through realizing their own problems and putting of conscious efforts by them for their solutions through long experiments.

Indigenous knowledge is local knowledge that is unique to a given culture or society. It is the basis for local level decision making in agriculture, health care, food preparation, education, natural resource management and many other activities in the rural areas. Such knowledge is passed down from generation to generation in many societies by word of mouth. Indigenous knowledge is beneficial for both local communities as well as for scientists who are striving to improve rural conditions. Every society has a large body of technical knowledge based on careful observation and use of its natural resources. Every society has ways to disseminate new information and technologies whether generated within or outside the society.

Indigenous knowledge is important for many kinds of developmental activities to be successful. Solutions offered by a development project may fail because they do not fit with the local knowledge. Indigenous knowledge may suggest alternatives.

Indigenous knowledge system has a long history:

- Farmers of the Neolithic (Stone Age) selected and domesticated all the major and minor food crops on which humankind survives today.
- Early cultivators knew about the characteristic food value and medicinal use of over 1500 plant species.
- Over 500 different vegetables were cultivated in ancient times.
- Women domesticated more plants than men and also invented grain milling.
- Diffused light storage techniques adopted and promoted by the International Potato Research Center Peru (Chilli) has been learned by the scientists from farmers of Kenya, Nepal and other Asian countries.

- ❖ According to International Rice Research Institute (IRRI) Philippines, 90% scientific ideas were brought to IRRI by Asian Researchers which are practiced by farmers since generations.
- ❖ Farmers have been involved in genetic purity of animals and plants since long. They have also changed material with other farmers of far flung areas to improve crops and animals.
- ❖ Farmers still grow old varieties of crops for taste and good storage qualities.
- ❖ Farmers have been using different indigenous methods to control insect pests. In India farmers mixed weedicide with sand and spread it on wheat which controlled insects.
- ❖ In some villages of India, local made agricultural implements are used which still have not been replaced by effective modern tools.
- ❖ In Bangladesh, opium is inserted in bottle-gourd stems to reap rich harvests.
- ❖ Non bearing papaya bears fruit when injected with cholera vaccine.
- ❖ If non-bearing bottle-gourd vines are given a longitudinal incision, they start bearing fruits.
- ❖ Powder of neem and tobacco leaves is used as insecticide.
- ❖ Urea is used to control stem borer in rice crop.
- ❖ Wood ash is used as pesticide to control insects.
- ❖ Banana plant leaves are spread in wheat crop to control rats because dried leaves create sounds due to which rats run away.

There are so many other examples of indigenous technology in our own countries.

The purpose of this discussion is that when extension agents visit farmers of a particular area, they should collect information on the local technologies, which are useful for scientists to generate new technologies.

Improving Extension Programs and Processes

12. NEEDS AND NEEDS ASSESSMENT

13. PLANNING EXTENSION PROGRAMMES

14. MONITORING AND EVALUATION OF EXTENSION PROGRAMMES AND RECOURCES

15. EXTENSION METHODS – INDIVIDUAL TECHNIQUES

16. EXTENSION METHODS – GROUP TECHNIQUES

17. EXTENSION METHODS – MESS TECHNIQUES

18. FIELD DAYS AND DEMONSTRATIONS

19. STRATEGIC EXTENSION CAMPAIGNS

20. MARKET LED EXTENSION MESSAGESS

12. NEEDS AND NEEDS ASSESSMENT

There are hundreds of needs which human beings require to be fulfilled for their development and prosperity. These may be economic, health, educational, food, clothing, shelter and so many others.

Need Defined

A need may be defined as a disparity between a present situation (what is) and a desirable situation (what should be).

Example: A person has not eaten for six hours. He is hungry. It is his present situation. He wants to eat and not feel hungry. It is his desired situation. In other words he wants to meet his hunger need to fill the gap and for the present he wants to reach the desired situation. For acquiring desired situation one has to put effort. If a person does not want to meet the need, he will not put the effort.

Difference between needs and wants

Needs: Refer to something considered necessary or required to accomplish a purpose. **Wants** on the other hand are considered desirable or useful but not essential. Interests indicate an individual's concern about something.

Need assessment is defined as determining if gap exists between what is and what should be and then determining the priority of these needs.

FELT AND UNFELT NEEDS

Needs of people are generally of two kinds-those of which they are **aware** and those of which they are **not aware**.

Felt Needs: The needs of which people are aware are called felt needs. When needs are recognized people realize that there is a gap between where they are and where they would like to be. When they ask for information about fertilizers or pesticides, they recognize it as their felt need and hope to fill the gap by getting the information. The need is a motivation to an action.

Unfelt Needs: Some needs are not recognized or unfelt by the persons who have the need. For example years ago farmers did not know about the use of chemical fertilizers i.e. Urea, DAP etc for increasing their yields. They needed this fertilizer but did not have any information. It was their unfelt need. When the use of fertilizers was demonstrated it became their felt need. Sometimes a need is felt need somewhere but unfelt need elsewhere.

CLASSIFICATION OF NEEDS

After classifying needs on the basis of felt and unfelt, they are further classified on social psychological basis.

A number of years ago, a prominent social psychologist Abraham H. Maslow, developed a theoretical model that he presented as a "Hierarchy of Human Needs". According to Maslow's model, needs are classified in the following manner:

Level one:

Physiological needs. Foremost are the biological and physiological things that are needed to survive. These include food, water, rest and shelter.

Level two:

Safety and Security Needs: When first level needs are satisfied, second level needs come into play, and include freedom from fear, danger and threats.

Level three:

Social Needs: Third level needs deal with social issues. These involve interpersonal relations. These needs tell us what our behavior and treatment for others should be. They also are involved in the establishment of a proper balance between our rights and obligations in the society.

Level four:

Esteem Needs: Esteem needs are related to the personality and ego of an individual. They are very important because they influence behavior. Personal recognition, status, personal wealth, all come in this class. These are also called status or ego needs.

Level five:

Self Actualization: Self actualization means actualizing one's potential of becoming every thing one is capable of becoming. The need of self fulfillment is being completely satisfied, but it can be a constant motivator to achieve in life.

Assessment of Needs

Needs are assessed in various ways. Some techniques are given below:

1. Individual Techniques
2. Group techniques
3. Secondary sources
4. Participatory Rapid Appraisal (PRA).

I. Individual Techniques:

Individual techniques include

1. Face to face interviews,
2. Key informant interviews
3. Questionnaires
4. Informal personal observations and
5. Formal personal observations.

1. Face to face interviews:

This is appropriate when audience is less literate or when dealing with complex issues on which there is little information available. Both structured and unstructured questions are appropriate for face to face interviews.

2. Key informant interviews:

Key informants are people who are considered experts in a given area because of their professional knowledge or their position of influence in the community or organization. Examples include teachers, religious leaders, grass-root workers, traditional leaders, opinion leaders and political leaders. Key informant interviews are very useful when budget is limited and need assessment is done fast.

3. Questionnaires:

This technique is more structured than interviews. It can be done through telephone, mail or group settings. In developing countries telephone is used very rarely for this purpose. Questionnaires can also be hand delivered to the respondents and collected after completion in a certain period of time.

4. Informal Personal Observations:

Valuable needs assessment data are collected through informal personal observations. Field workers see or experience a lot as they travel and work with farmers in the field. Observations should be remembered and noted regularly.

5. Formal Personal Observations:

This need assessment technique is based on using rating forms, check lists, or observation schedules for collecting information. In this method, items are predetermined.

II. Group Techniques

Group techniques allow participants to interact with one another during need assessment activities. Information can be collected in writing, as in Delphi technique or orally in a group setting such as a focus group.

1. **Delphi Technique:** In this technique people with exceptional knowledge about a given subject area are involved in repeated questions and feedback using written questionnaires, until a consensus is reached on the subject. The process begins with specifying the needs to be assessed, who will be involved and how the information collected will be used. Ten to fifteen people may be used if responses are not expected to vary a great deal. If major differences in opinion are expected, then larger samples are recommended.

   The Delphi has two advantages. First, it avoids the direct confrontation of people with opposing views. Second, it eliminates costs of traveling of participants.

The Department of Agriculture Extension, University of Uganda used this technique to identify and prioritize policy issues related to the conditions of service for women extension workers.

2. **Focus Group Interviews:** It is a technique in which a group of people who possess certain characteristics provide data of a qualitative nature in a focussed discussion.

3. **Nominal Group Technique:** This technique can be used to generate possible items and set priorities in conducting a need assessment. For example, a chairman of a farmer group invites their extension agent to facilitate a meeting of selected members' assembly to determine the activities for the following year. Extension agents use the following steps in nominal group technique.

    1. Starting the question or problem.
    2. Generation of ideas.
    3. Presentation of ideas.
    4. Clarification of ideas.
    5. Rating of priorities; and
    6. Discussion and voting.

1. **Informal Group Methods:**

This category includes gathering information at group meetings and social gatherings. It is common for participants at meetings to talk about issues and problems in their family, community or organizations even when they are not part of the agenda. Social gatherings such as recreational, cultural and religious events provide opportunities for collecting information. Valuable information maybe obtained by listening actively and seeking selected individuals to clarify the issues.

III. **Secondary Sources:**

Secondary data are defined as "information gathered for the purpose other than the immediate or first application". Secondary data sources include census reports, previous studies and administrative records and reports.

IV. Participatory Rural Appraisal: (PRA)

It refers to the use of several data collection methods to gather practical information on developmental issues in local communities quickly. These might include interviewing, key informants, reviewing secondary data sources, mapping exercises and conducting semi-structured interviews.

Guidelines for Extension Agents to conduct need assessment:

1. Determine the purpose for conducting the need assessment.
2. Define the goals and objectives for the need assessment.
3. Select the approach you will take in collecting information.
4. Design the procedure.
5. Prepare schedule and budget.

6. Conduct a pilot test.
7. Collect the information.
8. Analyze the data.
9. Prepare a report of the finding
10. Evaluate your efforts and
11. Use the need assessment information.

13. PLANNING EXTENSION PROGRAMMES

Planning is necessary for achieving both short and long term goals. Extension program development is a continuous series of processes which needs realistic approaches including time, resources, manpower and support services. Program development is both an educational process and an attempt to do a systematic job. Why is program planning needed? The act of extension program planning rests on a number of assumptions.

1. That present conditions of living are not what they should be and that some improvement is required in the present situation.
2. That it is possible to select, organize and arrange certain resources of technology, manpower, teaching methods and physical facilities to help people achieve more desirable ways of living.
3. That people need the guidance of professional leaders possessing the knowledge and skills necessary to help them learn to solve their problems.
4. That change is necessary and pre-requisite to progress. The present condition should be modified in favour of new ways of thinking and doing.
5. That people will continue their present ways of thinking and doing until they have new experiences that cause them to reject present modes of behavior and adopt new ones.
6. That to cause people to accept new modes of thinking and acting requires greater incentives to adopt recommended practices than those which are offered by present ones.
7. That progress is made only when someone has ideas about a better way and has the skill, courage and opportunity to try them out.
8. That progress requires change, but all changes do not necessarily result in progress. It is the change in specific, predetermined and desirable direction that results in progress.
9. That the most effective teaching and learning results from choice, not chance.
10. That educational change in people is pre-requisite to achieve other changes in a society.
11. That the primary objective of programming and teaching is to help each individual, family and community achieve the highest level of living that is possible economically, socially, and morally by means of self-help through education.

CHARACTERISTICS OF EXTENSION PROGRAMS

1. It is practical and fills a need recognized by the people for whom it is designed.
2. It is flexible to meet ever-changing conditions and is comprehensive to meet the wide variety of needs of all rural groups.
3. It is well conceived to make a continuing contribution to rural development. It considers not only the immediate needs of the population but looks into the future.

BASIC PRINCIPLES OF PROGRAME PLANNING

1. Access:

Try to ensure that the program and its benefits can reach those in need. Beware of consequences, if some farmers have access to the program while others do not.

2. Independence:

Devise a program which helps and supports the farmer but which does not make him or his livelihood dependent upon the program.

3. Sustainability:

Ensure that the program plans and solutions are relevant to the local economic, social and administrative situations. Short-term solutions may yield quick results but long-term programs that are suitable to the local environment have greater success.

4. Going Forward:

Technical aspects of rural development programs should help the farmer to take the next step in his development according to his ability and resources.

5. Participation:

Always try to consult the local people, local leaders, seek their ideas and involve them as much as possible in the programs.

9. Effectiveness:

A program should be based on the effective use of local resources. It means judicious use of water, seed, pesticides and fertilizers etc will lessen the chances of wastage or under estimation resulting in increase in production.

What are the important components of a good program?

1. **Technological:** For example improved cropping practice, better water and inputs supply along with their proper usage guidelines.

2. **Reformist:** Organization development, Farmer Organization formation for active participation in the programs.

3. **Structural:** Improvement of social, economical and political relationship among the society where program is to be launched.

PROGRAM PLANNING

Definition:

It is a sequence of decisions reaching in an agreement regarding what will be done, when, where, how and by whom.

Planning process:

1. Planning-----what are we going to do (situation analysis)?

2. Implementing-----doing it
3. Monitoring------checking what we are doing
4. Evaluation-------assessing what we have done
5. Replanning------planning the next action

Where we are---------- Where we want to be

How to get there
Basic planning

Planning:

1. Situation Analysis:

All subsequent steps are dependent upon the existing situation. The following elements are necessary in analyzing the situation.

1. Agricultural Resources and current farming patterns and practices.
2. Economic factors, credit, market, and price structure.
3. Local culture, family system, needs, values and desires.
4. Socio-political system.
5. Peoples abilities and individual resources, their skills, understanding and intellectual development.
6. Channels of communication through which people obtain information, exchange ideas and make group decisions and
7. Other government and non-government programs which are active in the community.

2. Identification of Community Problems:

When information or data about the present situation are collected, it should be analyzed and processed. See the gaps and deficiencies and find out reasons. Is the problem due to lack of information? Or other factors such as:

- ❖ Availability of basic supplies such as seed, fertilizers, pesticides, water etc.
- ❖ Availability of services such as seed industry, soils and water analysis laboratories, technical staff etc.
- ❖ Basic infrastructure such as roads, transport, storage etc.
- ❖ Existence of incentives i.e price, subsidy, credit etc.

Problem identification methods

1. Observation
2. Knowledge, attitude and practice (KAP) surveys
3. Consultation with specialists
4. Interviews
5. Group discussions
6. Records and reports (secondary data)

After identification – analyze the problem and find the factors of a gap between the existing and a desired situation.

Factors may be:

- ❖ Knowledge information problems
- ❖ Skill problems
- ❖ Attitude problems

After identifying problems – fix priorities. The criteria for fixing priorities are:

1. Availability of finance.
2. National need and department polices.
3. Urgency of problem
4. Local needs and condition
5. Immediately effect on the target audience
6. Likely audience response
7. Previous experiences

After prioritizing the problems we enter into preparing planning document or proposal which contains objectives to be achieved.

Planning document or proposal replies these questions

- ❖ What we want to do?
- ❖ How are we proposing to do it?
- ❖ When will we start?
- ❖ Who will be responsible?
- ❖ Where will it be done?

Project document includes background information, budgeting, expected benefits etc. In Pakistan, we call this document PC-I. It shows details of manpower available and required, material needed and available and finances. It is approved for implementation by the competent authority i.e. provincial government or federal government.

Suggested format for a local project plan

Name of Community Date prepared
Name of group Name of works

1. Project title
2. Period covered
3. Project objectives
4. Activities
5. Expected results
6. Target dates (start and finish)
7. Persons responsible (staff and village people)
8. Resources needed
9. Monitoring and evaluation measures
10. Finances required for
    a. Staff
    b. Traveling
    c. Inputs
    d. Training

3. Implementation

Implementation means drawing of action plan according to the time frame outlined in the project proposal.

The action plan should be specific about the following:

- The activities to be undertaken according to objectives/targets set in the plan.
- Preparing timetable for activities.
- Provision of financial, human and materiel resources to be used in implementing the plan.
- Assigning duties to the persons.
- Reporting achievements in monthly quarterly report as a monitoring activity.

4. Monitoring

5. Evaluation

After completion of the project, evaluation is carried out to see whether the objectives have been achieved or not.

6. Replanning

If the results are according to the objectives and successful, then replanning is done for other areas.

QUALITIES OF A GOOD PROGRAM

1. Program shows what is to be done and why?
2. Purpose of the program should be conveyed to the clients to promote interest and understanding between the organization and clients.
3. It should be a guide for action.
4. It should establish objectives towards which work is directed and evaluated.
5. It should aid in leadership development.
6. It should avoid wastage of time, energies and resources.
7. It should promote efficiency.
8. It should justify the public funds and expenses.
9. It should develop cooperation among different departments and farmers.
10. It should enhance skills of extension workers and farmers.

14. MONITORING AND EVALUATION OF EXTENSION PROGRAMS

It has been observed by the experts at different levels that for effectiveness and sustainability of extension programs and resources used in implementing them, monitoring and evaluation are important functions but frequently neglected. In many extension services throughout the world the monitoring and evaluation units are weak and limited to adhoc studies. If established, these M&E units are finished with the closure of aided projects. In many organizations, monitoring and evaluation have a negative image because these units may concentrate on problems, exposing weaknesses and failures. Instead, it should be used in a positive manner to improve extension's performance and increase its efficiency.

The word monitor is derived from the Latin word meaning "to warn" and evaluate stems from the word "value".

Conceptual Framework for Monitoring:

A conceptual framework for monitoring consists of four principal components.

1. An extension organization
2. A monitoring and evaluation (M&E) unit
3. An information need matrix and
4. a monitoring and evaluation cycle

Top management receives information from the monitoring unit and from other formal and informal sources. This influences program implementation, leads to better program planning and ensures sustainability of extension programs. Ultimately, this leads to institutional development, which has been defined as the process of improving the ability of institutions to make effective use of available human and financial resources. A management information system is a scheme by which the right information is obtained in the right amount at the right time and is made available to the right person or persons.

Approaches to Extension Monitoring:

Several approaches to extension monitoring are available. All of them advocate simplicity and timeliness. They include:

1. Traditional Administrative Approach.
2. Zones of Concentration Approach
3. Methodological Approach.
4. Expanded Monitoring Approach
5. Adoption Rates Approaches and
6. Marketing Approach.

1. Traditional (Administrative Approach)

Based on routine administrative reporting, this approach is concerned with physical and financial achievements in a program. Its primary weaknesses include multiplicity of reports by program personnel and absence or neglect of beneficiary contact. It is increasingly being replaced by other approaches.

2. Zones of Concentration Approach (1977)

This approach concentrates on

a. Visits, as the final outcome of extension efforts
b. Recommendations as the content of the visit and means towards the end yields and
c. Yields, as the eventual consequences of the development effort (Cernea and Tepping 1977).

3. Methodological Approach (Slade & Feder)

Introduced in 1981, this approach builds upon the zones of concentration approach and suggests a monitoring-cum-evaluation survey in each cropping season at the time of harvest with specific performance indicators. Working manual is characteristic feature of this approach.

4. Expanded Monitoring Approach.

Introduced in 1987, it is an expansion of the monitoring function to cover not only physical and financial information, but also beneficiary contact information and project diagnostic studies. Under this approach, there is greater emphasis on monitoring and less on evaluation. Project diagnostic studies are a novel feature of this approach (Kasely and Kumar 1987).

5. Adoption Rate Approach

Murphy and Marchant suggested an approach in 1988 which concentrates on adoption rates as key indicators. This approach moves away from trying to monitor agricultural results and concentrates on directly monitoring the provision of project services.

6. Marketing Approach.

Lee (1990) has suggested an approach which is based on market segmentation, a standard technique in marketing. Under this approach, the need and likely demand for new technology are first assessed, and then target market segments are predicted. For example 10% of the targeted farmers are likely to readily adopt a new technology; a further 15% are likely to adopt technology when returns for wheat reach x dollars/ton; 40% of the targeted farmers are likely to adopt the technology when they perceive that their peers have adopted it; and 35% of the target market is not likely to adopt the technology at all in the next five years.

Among these approaches Lees approach has some merit, because it is based on careful assessment of the need for new technology, an exercise seldom undertaken by extension organizations.

PRINCIPLES OF MONITORING

1. MONITORING MUST BE SIMPLE:

A complex or complicated monitoring system is self-defeating. The basic task of monitoring is to simplify the field level complexity.

2. MONITORING MUST BE TIMELY:

Timelines is of the essence in monitoring. Management requires input from the monitoring system so that timely action may be taken. Also timeliness is closely related to the credibility of monitoring itself.

3. MONITORING MUST BE RELEVANT:

It must concern itself only with parameters which are relevant to program objectives. This also ensures that monitoring does not generate information that is not used or is not usable by management.

4. INFORMATION PROVIDED THROUGH MONITORING SHOULD BE DEPENDABLE:

Management will rely on monitoring findings only if the information is believed to be reasonably accurate.

5. MONITORING EFFORTS SHOULD BE PARTICIPATORY:

Efforts should be made to ensure participation by all concerned with extension, whether they are field level personnel, subject matter specialists or extension clients (the farmers).

6. MONITORING MUST BE FLEXIBLE:

It is iterative in nature. It also gets routinized with the passage of time. These two features should not, however, lead to rigidity.

7. MONITORING SHOULD BE ACTION ORIENTED:

Monitoring often leads to action. Consequently it should follow pragmatic approaches, keeping the requirements of extension clients uppermost in view. Generating information for which there is no intended use should be avoided.

8. MONITORING MUST BE COST EFFECTIVE:

Monitoring efforts cost money and time. It is therefore, essential to make it cost effective. While principles of simplicity timeliness, relevance and accuracy will lead to cost effectiveness, computerization can also help to make monitoring more cost effective by reducing staff hours in data processing.

9. MONITORING EFFORTS SHOULD BE TOP MANAGEMENT-ORIENTED:

Monitoring units should keep in mind the requirements of top management when designing and operating a monitoring system. Yet at the same time, monitoring must take into account the facts that those who provide information to the system also must benefit or the quality of the information provided will decline.

10. MONITORING UNITS REPRESENT SPECIALISED UNDERTAKINGS:

Monitoring is not merely concerned with the collection and analysis of data, but with diagnosing problems and suggesting alternative practical solutions.

MONITORING AND ITS MAIN STAKEHOLDERS

There are many stakeholders in monitoring efforts. The funding agency, usually the ministry of Finance or Planning, wants to know that money has been spent properly. The ministry of agriculture wants to be able to say it has been efficient and effective. The target beneficiaries, that are small and marginal farmers, want help from the organization and want to improve the quality of their lives. And NGOs need information generated by monitoring efforts and also want to contribute information. Thus, there are four main stakeholders interested in monitoring:

1. Funding Agency
2. The implementing agency
3. Beneficiaries and
4. NGO's

FREQUENCY OF MONITORING

Monitoring is an ongoing, continual exercise. Data collection involving crop production should be undertaken twice in a cropping season; at the time of sowing and again at the time of harvest. The period of recall for collection of data should not be more than one month.

MONITORING UNIT

The monitoring unit should be staffed by technical personnel having specialized skills. The staff often consists of extension specialists, economists, sociologists or anthropologists, statisticians etc.

MONITORING INDICATORS

Indicators are variables that help to measure changes in a given situation. They are tools for monitoring and evaluating the effects of an activity. Indeed indicators are the principle means by which a monitoring unit keeps track of extension's capability, effectiveness and efficiency.

There are different indicators e.g. development indicators, socio-economic indicators, agricultural development indicators and extension indicators. The criteria for selecting indicators depend upon the purpose, resources, and time available. The following criteria are suggested.

- Simplicity (Should be simple)
- Unambiguous (Clearly defined)

- Data availability
- Accurate measurement
- Validity (What is supposed to be measured)
- Relevance (Relevant to project objectives)
- Specificity (Specific conditions that project aims)
- Consistency
- Sensitivity (Sensitive to changes)
- Prioritization (Prioritize minimum feasible list)

Capability, Effectiveness, Efficiency and Impact

The four concepts basic to monitoring capability, effectiveness and efficiency fall in monitoring domain while impact falls in the evaluation domain.

Capability: is the command that extension has over physical, financial and human resources, enabling it to serve its clients. It is reflected by extension's outreach, intensity, technical competence, physical and financial resources. Extension performance depends directly upon its capability.

Effectiveness: the degree to which goals are attained. Agricultural extension has many goals such as farmer welfare (social goals), increased income (economic goals), physical and financial targets (operational goals).

Efficiency: Rates at which farmers adopt recommended practices. Adoption rate of varying degrees of complexity can be conceived.

Impact: on extension can be measured by a simple indicator, like yield of a crop per hectare or by constructing simple productivity indices. Such indicators provide ultimate tests for the success of extension programs.

EXTENSION MONITORING STRATEGIES

1. Planning and design of the study
2. Desk Research
3. Selection of methods
4. Data collection and analysis
5. Report writing
6. Report presentation and
7. Follow up action

EXTENSION PERFORMANCE INDICATORS

Extension Effectiveness Indicators

Single indicator

1.	Awareness	No. of farmers aware of Village Extension Workers. %
2.	Visit	No. of visits by Village Extension Workers to farmers a. Twice a month b. Once a week c. No visit

3.	Field meetings	No. of meetings of Village Extension Workers with farmers in their fields. %
4.	Regularity	No. of meetings of extension agents with farmers on planned days.
5.	Field Day	No. of field days organized by Extension Agents a. in preceding month b. Quarterly c. Annually
6.	Demonstration	a. No. of demonstration plots held b. Result of demonstration; monthly, quarterly and annually No. and %
7.	Supervision	No. of supervisory visits from Agriculture Extension offices to Village Extension Worker in the field per month
8.	Research & Extension Linkage	No. of Research Extension workshops organized by the Village Extension Worker
9.	Farmer Training	No. of farmers trained at Training Institute per year.

Unitary or Composite Indicators

10.	Extension effectiveness	Arithmetic average of above indicators.

II. Extension Efficiency Indicators

11	Performance Index	Actual No. of farmers reached out of the target numbers.
12	Penetration Index	No. of farmers who adopted the recommended practices out of the target number.
13	Achievement Index	No. of adopting practices out of target numbers.

III. Extension Productivity Indicators

1	Yield	Yield/ha for main crops (average).
2	Productivity Index	Increase in yield over base year compared with base year. %

IV. Extension Capability Indicators

1	Coverage	Area under cultivation per Extension worker
2	Intensity	No. of farm families per extension worker
3	Competence	No. of Graduate Extension Workers out of total Extension Workers
4	Subject Matter Specialist	No. of Subject Matter Specialist per 100 Extension Workers
5	Research Extension Ratio	No. of Research workers/100 extension workers
6	Monitoring	No. of monitoring units personnel/100 Extension Workers
7	Gender Ratio	No. of female Extension Workers out of total Extension Workers %
8	Equity	No. of small and marginal farmers out of total contact farmers.
9	Mass contact	No. of group meetings held/month by Extension Workers in a year.
10	Computerization	No. of computers available in Extension organization/1000 Extension Workers

11	Print media	No. of leaflets/pamphlets distributed by Extension Worker per month/per year
12	AV media	No. of AV shows organized by Extension worker per month/ per year
13	Training	No. of Extension workers as a percentage of total extension workers who have received specialized training during a year.
14	Finance	Budgetary expenditure on Extension out of total Agri. Budget in a year %
15	Investment	Expenditure on agriculture extension as percentage of GDP per year
16	Transport	No. of bicycles, Motor cycles & 4 wheelers / 1000 EW

Informal Methods of Monitoring

1	Participant observation	2	Case studies	3	Key informants
4	Individual interviews or discussions	5	Group interviews or discussions	6	PRA etc

Formal Methods

1	Using census reports	2	Sample surveys	3	Special studies

Evaluation:

After completion of the project we assess what has been achieved in the light of goals, and objectives for the project. It is also called summative. Evaluation is essential because it allows every one to know what has or has not been achieved and whether it was fruitful to spend money, resources and time of manpower. Evaluation also suggests how planning and implementation can be improved for the future. How to conduct an evaluation?

There are four steps in an evaluation.

1. Identifying indicators or ways of measuring changes.
2. Devising and implementing a data gathering plan.
3. Analysis of findings and conclusion and
4. Reporting and actions based on evaluation.

1. **Identifying Indicators.**

The objectives of a program identify the indicators both quantitatively and qualitatively. For example in case of promoting a fertilizer program:

- ❖ See how many fertilizers and seed bags had to be used.
- ❖ How many demonstrations were used against the target fixed?
- ❖ What impact was indicated in terms of training and increasing yield in the objective and what has been achieved?
- ❖ How the funds have been utilized?
- ❖ Have the purchases been made according to set procedures?

2. Devising and Implementing a Data Gathering Plan

After deciding the necessary indicators, a plan must be agreed upon for gathering the information. The plan should specify who or what will supply the information and how and when it will be collected.

There are three common methods of data collection:
1) Record review
2) Director observation, and
3) Interviews

3. Analysis of Findings and Conclusions

Once the evaluation information has been collected it must be analyzed for reaching conclusions. Discussion of the conclusions with interested groups in the community is an important step towards their training for self-assessment.

4. Reporting and Actions Based on Evaluation

After writing a report it is intended that appropriate action should be taken to set the things right.

Actions based on evaluation can be of several kinds:

- Temporary Action – when the real case of the problem is still unknown.
- Corrective Action: when the cause is identified.
- Preventive action to minimize the damage caused by an identified problem.

Follow up action to an evaluation of terminal results should include:

- Sharing of information with the community.
- Discussion of evaluation results with field workers and other supervisors.
- Deciding on any action needed.
- Preparing a terminal report to the ministry that discusses the extent to which objectives were met, effectiveness of strategies used, difficulties encountered, major accomplishments, significance of the project and recommendations for future actions.

15. EXTENSION METHODS – INDIVIDUAL TECHNIQUES

INTRODUCTION

Extension Education is a non-formal or out of school voluntary education, and can be defined as any organized systematic teaching outside the formal system for groups of people with particular needs. It includes agricultural extension, adult literacy campaigns and programs in health and nutrition. Primary responsibility of extension worker is educating the rural community. There are some techniques and methods from which the extension worker may choose to set up learning situation and to maximize the transfer of information and skills to the adult learners.

How to select a teaching method

Before selecting a teaching method, the following points may be considered:

1. No single method is better than another; therefore the Extension Worker should choose the technique best suited to the situation.
2. Use a number of teaching methods in a program. It is evident that new information can be passed on to an individual learner by using a variety of ways.
3. When two methods are utilized, they reinforce the information contained in the demonstration.
4. Use visual aids and written material where required.

DIFFERENT EXTENSION EDUCATION TECHNIQUES

These are classified into three i.e. individual techniques, group techniques and mass method.

INDIVIDUAL TECHNIQUES

The extension worker, interacting on a one to one basis with the people, is utilizing an individual method of education. It is important that due to this technique the personal bond between the Extension Worker and the community can be established. The philosophy of Extension Worker is based on recognition of the significance of the individual farmers in promoting the progress of the nation. These methods are widely used and have been found to be highly effective when dealing with less educated farmers working with small holdings who are not normally exposed to other educational techniques. These techniques are.

1- Farm visits.
2- Home visits.
3- Result demonstrations.
4- Office calls.
5- Personal letters.
6- Telephone calls.

1. **Farm and Home visits:** It is one of the most effective methods. The extension worker must contact the farmers where they actually are, both physically and intellectually. Farmers are very busy people. It is not possible to take them away from their working situations; rather they should be contacted at their homes and farms (fields).

Purposes of Farm and Home visits

1. Delivering useful information to farmers and gaining information about farm situation and also adjusting general recommendations that fit in the specified situation.
2. Establish contact with farmers within the household and developing good public relations.
3. To learn what practices and problems exist on the farm.
4. Arousing interest in unidentified problems.
5. Selection of local leaders and demonstrations.

Essentials for making the visit effective

1. Careful planning.
2. Conducting the visit.
3. Follow up.

a. Careful planning.

During careful planning the following points should be considered.

i. Obtain or prepare a community map showing the place of living and work. This will assist the worker in planning area visits, populations, distance and time etc.

ii. Preparation and review of the visit record. A visit record should be initiated. It should contain the date each client was visited and notes describing the purpose of activity.

iii. Maintain an activity calendar. The extension worker should plan his activities in advance. It can easily be done by maintaining a calendar of activities and objective of work for different crop seasons.

b. Conducting the Visit.

i. Greet the farmer and members of the farm family upon entering the farm or home, be punctual, and develop friendly relations.

ii. During the visit, keenly observe the condition and activities of the farm operation and discuss his problems.

iii. Discuss with the farmer, what should be done and how the change could be carried out. Suggest suitable solutions, make the farmer feel at ease and try to maintain farmer's interest.

c. Follow up (Accurate recording).

i. Make notes in the visitation record and record location on maps. Record background facts, suggestions of farmer, and note farmer's demands.

ii. Prepare any additional information promised to the client and fulfill it.

iii. Respect the client's privacy.

iv. Extension Workers should arrange as many visits as the situation demands.

v. The Extension Worker should arrange the supply of needed information to the farmers when it becomes available.

3. **Results Demonstrations**

This demonstration teaches why a practice or input should be adopted by physically showing how a new or different practice compares with a commonly used local practice. This technique is mainly used in crop farming in actual field and allows the farmers to get the maximum information.

Purpose of result demonstrations

1. New practice is superior to the old practice.
2. A positive result is shown to the farmers.
3. The practice found effective should be promoted in the area which will invariably lead to the adoption of the recommended practices.

Guidelines for result demonstration

1. Planning the demonstration.
2. During the demonstration.
3. After the demonstration.

1. **Planning the demonstration**.

i. Identify the problems to be dealt with by the demonstration i.e. situational analysis.

ii. Decide what objectives are to be accomplished.

iii. Gather complete information about the proposed practice identified having a specific purpose.

iv. Seek the assistance of clients in the planning and carrying out the demonstration. Local dealer agreement is of importance.

v. Develop a complete plan of work- when, where, and how the demonstration will be conducted.

vi. Select an accessible demonstration plot.

vii. Visit the host farmer and prepare the site plan and arrange materials and equipment needed.

viii. Other teaching aids to be arranged.

ix. Selection of the demonstrator.

2. **During the Demonstration**

1. Ask the community leader to attend the demonstration with other farmers.
2. Use the demonstration site for meeting and tour during the life period of demonstration and supervise the demonstration.
3. Keep record so that the results at harvest may be compared with the local practices.
4. Publicize the demonstration.

3. **After the Demonstration**.

1. Evaluate the process and result of demonstration.
2. Provide follow-up information and training to interested clientele. The Extension Worker must try to inform as many farmers as possible about the result of the demonstration.
3. Extension Worker must maintain regular contact with the farmers to convince them to adopt the technology tested.
4. He must render all possible help to the farmers in putting it into practice.

4. **Office Calls**.

This method is concerned with personal visits made by the clientele to the Extension Office to seek information and assistance.

1. The farmer clearly recognizes the complexity of his problem, and that is directly related to the fulfillment of some urgent need.
2. The farmer has strong desire to solve it, but is unable to do so, on his own.
3. He has full confidence in the extension worker and values his advice regarding the solution of his problem.
4. He is receptive to learning new things.

To encourage office visits Extension Worker must consider convenience of the farmers to reach

i. Place the extension office in a convenient location.
ii. Observe regular office hours. Extension Worker must be available in office.
iii. Provide a visitors record book, so clients may register their visit and inquiry.
iv. Keep the office neat, orderly and attractive.
v. Maintain an up-to-date bulletin board and have information materials readily available in the office.
vi. Make a special effort to put the visitor at ease.

5. **Personal letters**

Essential for effective writing. Complete information requested by the farmers should be given.

- Information should be concise and comprehensive.
- Information provided should be clear and in simple language.
- Subject matter of the letter should be correct in all respects.
- The tone of letter should be courteous and informal.
- Should give a prompt reply to farmer's enquiry.
- Provide complete information requested by the farmers.

6. **Telephone Calls**

- Telephone serves as a medium of communication from person to person.
- This is not a common method, however, it can be used for:
  - i. Appointments.
  - ii. To discuss the schedule of visit.
  - iii. To seek help from theworker.

iv. To check progress made in various on-going extension projects.
v. To provide information sought by the clientele.
vi. To get the idea of other scientists about the problems faced.

16. EXTENSION METHODS -GROUP TECHNIQUES

INTRODUCTION

A group-action technique provides a pre-conceived and pre-designed pattern for interaction of the group members, as opposed to unplanned behavior. An effective technique motivates and also activates both internal and external group dynamics, so that the forces are better integrated and directed towards achieving the goals of the group. Group techniques motivate the people and convert the interest stage to the trial stage of learning. When the reaction of the group is positive, the majority of members may proceed to the adoption stage.

The most important group techniques

1. Demonstrations.
2. Meetings.
3. Group discussions.
4. Panel discussions.
5. Symposia.
6. Seminars/workshops.
7. Lecture techniques.
8. Tour and field trips.
9. Field days.
10. Learning through brain storming and buzz grouping.
11. Farmers' training centers.

1- DEMONSTRATIONS

The demonstrations are the foundation of extension teaching. In areas where the educational level of farmer is poor, demonstrations are particularly effective as "Seeing is believing". Demonstrations are one of the most effective tools for transfer of technology. They involve three processes of learning: seeing, hearing and doing.

Types of Demonstrations

a **Method Demonstrations.**

In a method demonstration, an improved practice is presented before a group, step by step to teach them how to carry it out. Pruning, grafting, sowing seed in lines, treating seed with chemical are some of the examples of method demonstrations.

Advantages

1. By this technique the farmers learn effectively and understand easily.
2. It motivates people and stimulates action in an integrated way.
3. By this technique leadership is developed.
4. This technique provides confidence to extension workers and the farmers.

5. Promotes personal acquaintance between the extension workers and people.
6. Accomplishes a change in practices at a very low cost.
7. The method demonstration is also utilized during field days and farmers' meetings.

Limitations

1. The demonstration is based on the skill of the extension worker.
2. Success of demonstration depends upon adequate facilities available at the demonstration site.
3. It has little effect if the technology (material and equipment) is too costly.
4. It involves a considerable amount of time for preliminary preparation.

b. Result Demonstration.

This method provides us the result of improved practices in comparison with old practices. It is one of the most important techniques to gain the confidence of the farmers in terms of adoption of recommendations.

Advantages

- It furnishes local proof of the desirability of recommended practices.
- It is an effective technique for introduction of a new extension programme.
- The result demonstration convinces the farmers and is adopted readily.
- It is a good source of collecting authentic data for meetings, radio talks and news items.
- Provides a valuable data for policy formulation.
- It also helps in discovering local leadership.
- It creates confidence in the extension workers and farmers.

Limitations

- It is a time consuming practice.
- Its success depends upon the efficiency of the extension worker.
- This practice is open to seasonal threats.
- It loses its usefulness if not publicized.

2. MEETINGS

Meetings are one of the oldest and most important methods of extension teaching. These meetings are called by extension workers for training about the production technology of the next crops as well as for discussing the various problems being faced by the farmers. Adequate time and encouragement should be provided to the farmers to discuss their difficulties.

Kelsey & Hearn identify five types of meetings:

1. **Periodical meetings with a set agenda**

   These types of meetings include meetings of Boards of Directors, Youth Clubs and Executive Committees with a set agenda.

2. **Planning meetings**

   Planned and conducted by the professional extension workers.

3. **Training meetings**

   By these meetings, rural leadership is developed; these are narrow in scope and are for specific jobs.

4. **Special Interest meetings**

   These meetings are called for special interests e.g. Kitchen gardening, farm management, food preservation etc.

5. **Community meetings**

   These meetings are organized for all the people of the community and are intended to appeal to their varied interests.

3. GROUP DISCUSSIONS

Through these discussions various points of view and the interests of the participants are aroused to do something towards solving their problems.

Guidelines for conducting group discussions

1. The extension workers should avoid giving the impression that his solution is the best.
2. Existing practices should not be criticized instead new ideas should be placed before the group for discussion.
3. Avoid imposing the pre-conceived idea on the people.
4. In the initial step it maybe unsuccessful, therefore the extension worker should not get frustrated.
5. Before going for a meeting, a well-prepared concept and clear idea may be borne in mind.

4. Panel Discussion

Panel discussion is best for showing various points of view and presenting controversial objects.

Advantages

- It provides spontaneous interaction between the panel method, panel members and audience.
- It provides the opportunity for both questions and answers.
- The interaction and the fast moving questions and answers create interest among the audience.

- Discussion can cover a lot of the subject matter under a skilful leader.

5- Symposia.

It is a short series of lectures, usually with 2-5 speakers, each with a different point of view. The professional expert's knowledge of the subject and experience creates special interest.

6- Seminars / Workshops

This approach is generally used for training of extension personnel and local leaders. The effectiveness of the seminar/workshop depends upon a high qualified pool of resource persons, careful planning, schedules, food, accommodation etc.

7- Lecture Techniques.

Lecture is used by extension worker and Subject Matter Specialist to present technical information. It is a one way communication from speaker to audience.

Characteristics of a good lecture

- It should focus on the subject of interest of audience.
- It should start with a challenge.
- It establishes a common ground between the speaker and audience.
- It must have familiar and concrete words that express the idea.
- In a lecture well-organized ideas are presented in a logical sequence.
- It must integrate ideas.
- All the main points should be given consideration.
- It must have unity, coherence and emphasis.
- It must be supplemented by visual aids.

8- Tours and Field trips

It is one of the most effective methods of teaching. This is informal and teaching is done at farms where successful projects have been carried out. During tour, the participants are taken to the Agriculture farms/other places where the activities are being carried out. A special planning and prior arrangement should be made before the tour.

9- Field Days

Field days are vitally important to show the neighboring farmers the effect of technology where demonstration is held. The farmers, extension workers and Subject Matter Specialists visit the field demonstration to see the result themselves. Field days are more effective when held at a proper stage during the crop growth period when differences are visible, e.g. at the harvest time.

10- Learning through brainstorming and buzz grouping.

This technique is applicable when the Extension Workers and Subject Matter Specialists conduct classes which may include both field workers and progressive farmers.

Brainstorming

It is a modern technique used to stimulate creativity and promote involvement of the audience in the learning process. The session of brainstorming should be guided by a leader who may be a Subject Matter Specialist. One member should be deputed for recording the suggestions. The leader must involve the participants effectively. At the closing of session, the leader should report on the suggestions made.

Buzz grouping.

In these techniques the group is divided into 4 to 6 members in small groups. The specific topic or question to be addressed is explained. Each group is asked to select a leader and a recorder. The discussion or "buzzing" proceeds for a period already specified. The presentation is prepared and presented to the gathering.

11- Farmers Training Centres

This technique is being used in many countries. The primary objective is to show the participants how farming can be made profitable by using improved methods / skills.

17. EXTENSION METHODS/MASS TECHNIQUES

Mass media are those channels of communication which convey information to a large number of people at a time. They include media which convey information through print (posters, newspapers, leaflet), by sound (radio) and moving pictures (television and films).

Tasks of Mass Media in Extension Education

1. Spreading information awareness and creating interest in farming community especially innovators.
2. Giving timely warnings about possible pest and disease outbreaks, and urgent advice on what action to take.
3. Multiplying the impact of extension activities. A demonstration will only be attended by a small number of farmers, but the results will reach many more if they are reported in newspapers and radio or telecast on television.
4. Sharing experiences with other individuals and communities. The success of a village in establishing a tree plantation may stimulate other villages to do the same if it is broadcast over the radio. Farmers are also interested in hearing the problems of other farmers and how they have overcome them.
5. Answering questions and advising on problems common to a large number of farmers.
6. Repeating information and advice. Information heard at a meeting or passed on by an extension agent can soon be forgotten. It will be remembered more easily if it is repeated by mass media.
7. Farmers can be brought into contact with successful farmers from other areas, respected leaders and agricultural experts through mass media.

Mass media communication requires specialist professional skills. Extension agents can contribute to the successful use of mass media by providing material to media producers in the form of newspaper stories, photographs, recorded interviews with farmers, items of information about extension activities or ideas for new extension films and radio programs. Extension agents may use mass media in their extension work e.g. by distributing posters and leaflets or by encouraging farmers to listen to farm broadcasts on radio and TV.

PRINCIPLES OF MEDIA USE

For effective extension work through mass media, the farmers must:

- Have access to the medium.
- Be exposed to the message. They may have radios, but do they listen to broadcasts regarding farming or watch agricultural programs on TV?
- Pay attention to the message information. It must be attractively presented and relevant to farmers' interests.
- Understand the message.

Mass Media Messages

Mass media messages are short lived and the audience may pay attention for only a short time, particularly when the content is educational or instructional. If too much information is included, much of it will soon be forgotten. This means that the information passed through mass media should be:

- ❖ Simple and short.
- ❖ Repeated to increase understanding and help the audience to remember.
- ❖ Structured in a way that it aids memory.
- ❖ Coordinated with other media and with advice given by extension agents. It is important that what the farmers hear and see via mass media, matches what extension agents tell them.

Extension agents can help media producers by keeping them informed of farmer's concerns and information needs, and by reporting any failure to understand the content of the products of mass media.

PRINT MEDIA

The term print media is used to cover those communication techniques that rely principally on combinations of printed words and pictures. They are our oldest formal combinations. To use them effectively, the educational levels and literacy rates of the audience must be considered. Print media include newspapers, newsletters, folders, leaflets, pamphlets etc.

Newspapers: They are not widely available in rural areas. However, local dealers often read newspapers and a regular column on agricultural topics is useful to create awareness of new ideas and to inform people of what other groups or communities are doing. Now-a-days many newspapers publish a special weekly page on agriculture.

Magazines: Agricultural magazines are also published on monthly or quarterly basis by the agricultural departments to convey new information or seasonal calendars. Farmers' organizations, associations and chambers also publish periodical magazines preferably in widely used local languages.

Posters: They are useful in publicizing forthcoming events and for repeating messages that farmers receive through other media. They are especially prepared as a part of agricultural campaigns and issuing warnings or instructions against pest disease outbreaks or losses from odd weather. They vary in size from small, medium to large and may also be supported with appropriate photographs. They should be displayed in prominent places where a lot of people pass by regularly. The most effective posters carry a simple message, catch people's attention and are easy to interpret.

Posters are put on walls of buildings, fences, trees, poles, bulletin boards, trucks, automobiles etc.

Leaflets: They can summarize the main points of a talk or demonstration, or provide detailed information that would not be remembered simply by hearing it, such as fertilizer application rates or names of seed varieties.

Circular letters: They are used to publicize local extension activities to give timely information on local farm problems and to summarize results of demonstrations so that the farmers who cannot attend them may still benefit.

Audio – Video media:

Radio: Radio is a particularly useful mass medium for extension. They are electric or battery operated. Information can reach households directly and instantly throughout an area. Urgent news and warnings can be communicated for more quickly on radio than print media. Radio is the best source of spreading new ideas and activities of extension to a large number of people at a time. It can also enable one district or tehsil, or group to share its experiences with others.

Ways by which Extension agents can achieve a more effective use of radio include:

1. Recording broadcasts on farming on a cassette recorder to replay to farmers later.
2. Encouraging farmers to listen to broadcasts either in their own houses or in-groups at a community centre.
3. Stimulating the habit of listening to broadcasts on farming and expectation of gaining useful information from radio.

Many extension agents will at some time have an opportunity to speak over the radio. They maybe asked to interview farmers in their area or perhaps give a short talk themselves. The following guidelines may be useful.

Radio Talk:

- Decide on the purpose of talk i.e. what you want the people to know, learn or feel at the end of it.
- Attract attention in the first few seconds.
- Speak in layman language.
- Repeat the main points carefully.
- Give specific examples to illustrate your main points.
- Limit your talk to 3-4 minutes on a single topic.

Interviews:

- Discuss the topic and the questions you intend to ask, with the interviewee beforehand.
- Relax the interviewee with a chat.
- Avoid asking unexpected questions from the interviewee.
- Use a conversational style. It should sound like an informal discussion.
- Keep questions short. Ask questions beginning with why, what, and how? Avoid asking questions that require one word answers such as yes or no.

Television:

Television combines vision (picture) with sound. Television broadcasts are limited to far-flung areas. Moreover, majority of poor farmers can not afford buying television sets. Now-a-day's television centres are telecasting films on agriculture regularly to teach farmers. Video films can also be made locally to show to the farmers.

Television Programs for Agriculture:

1. **Regular scheduled programs:** These include agricultural shows presented on a regular basis for a fixed number of times. These may be at national level or regional level.
2. **As a guest:** Agricultural experts and extension agents are invited to Television station to present their views on agricultural issues either regularly or in emergencies.
3. Short spot announcements/advertisements: Short spot announcements or advertisements are telecast for promotion of new products, new technology or instructions to farmers for precautionary measures.

PRODUCTION OF TELEVISION PROGRAMS

Production of a Television program involves a process:

1. Preparatory planning phase includes:

a. Discussion on idea between the producer and experts.
b. Writing of a research script.
c. Writing of a production script.
d. Selection of participants and site for recording of program.

2. Recording or Presentation includes:

a. Discussions may be live or recorded
b. Program may be recorded partly in studios and partly outside in the field.
c. Recorded program is edited to remove unnecessary recording and limiting it within the time schedule.
d. Preview and approval of the program by the authorities for telecast.
e. Telecasting the program.

18. FIELD DAYS AND DEMONSTRATIONS

Demonstration is considered as the foundation of Agriculture Extension teaching. They are based on the idea of "Show me", as we all know that seeing is believing. In the demonstration the improved practices are shown to the farmers. Practical demonstrations are very effective tools in the hand of Agricultural Extension worker for transfer of technology. It involves the three important process of learning, seeing, hearing and doing therefore it is highly convincing. There are two types of demonstrations; method demonstration and result demonstration and these may be single demonstration or block demonstration. These demonstrations are also utilized for field days and farmers' meetings to reach more farmers in the community so that they may benefit from the results of demonstration.

Advantages / Importance of Demonstration

1. It is one of the basic tools of agriculture extension which has great impact on the crop production.
2. It teaches why a practice or input should be adopted; new practice versus old or local practice.
3. Persuade farmers to adopt/try new practices.
4. Teaches the skill of a procedure very effectively and makes one understand it easily.
5. Setting long term teaching situation.
6. Produces positive results for extension workers by creating confidence in their judgement and ability.
7. Seeing, hearing, discussing and doing motivates people and stimulates action.
8. Provides an opportunity for developing leadership.
9. Promotes personal acquaintance between the extension worker and the people.
10. Accomplishes changes in practice at a very low cost.

Planning the Demonstration

1. Identify the problem to be solved by the demonstration through participation of farmers.
2. Decide exactly what you want to accomplish.
3. Gather complete information about the practice and study.
4. Develop a complete plan of work.
5. Select a suitable site accessible to all; it should be centrally located on a road nearby so that people can easily visit the site.
6. Visit host farmer and work with him. He will be answering most of the questions during the demonstrations.
7. See whether or not the people can afford to follow it.

8. See whether or not the necessary equipment and supplies are available in sufficient quantities.

9. Discuss the demonstration with local leaders and ask them to help you plan the demonstration.

10. When people are gathered to see the demonstration explain what you are going to do and why it is important and explain the preventives one by one.

11. Go through the demonstration step by step, give answers to questions and repeat difficult steps.

12. Check the effectiveness of instructions by asking the audience to do one or more steps.

13. Summarize the importance of the practice, important steps, supplies and equipment needed.

14. Distribute illustrated folders and literature showing step by step procedures.

15. Use the demonstration site for meetings and tours during the life of the demonstration. Encourage host farmers to describe the process.

16. Keep records so that the results at harvest may be compared.

17. Publicize the demonstration through mass media.

18. Evaluate the process of results of the demonstrations.

19. Provide follow up information and training to interest clientele.

20. Visit demonstration plots often to see that they are kept free of weeds, insects, irrigated properly and that additional dozes of fertilizers are applied at proper time.

19. STRATEGIC EXTENSION CAMPAIGNS

INTRODUCTION

Campaigns involve coordinated use of different methods of communication and education and aim at focusing attention on a particular problem and its solution over a period of time. Campaigns are of different types depending upon the subject matter such as charity campaign, political campaign etc. The campaign for Agricultural Extension is self-help campaign. These campaigns of agriculture provide information and education which people can use to improve their livelihood and socio economic status.

Advantages of Extension Campaign

1. It is the only way to handle complex programs of public information and education.
2. Approach permits the use of resources (time, fund and personnel) more effectively.
3. It permits the use of combinations of methods, all directed towards a specific objective.
4. This approach produces a planned schedule of coordinated efforts over a period.
5. It can reach more members of an audience.
6. It reaches the audience in a repetitive pattern that increases learning.
7. It can help build enthusiasm and cooperation within an Extension group and farmers organization.

When to use a campaign

The campaign approach is most useful when the involvement of farmers in the extension process is essential and when resources are available to carry it out successfully.

Creating a plan

Planning program of Extension campaign includes three stages.

1. Analysis.
2. Identification of objectives.
3. Formulation of the plan.

Stage-I

Analysis

Careful analysis of topic situation, intended audience and local extension organizations, can help keep a campaign simple.

Some Questions frequently asked about each of the three areas of analysis

1. How familiar is the topic to the intended audience?
2. How visible is it?
3. How easy is it to see and describe?
4. How readily it can be demonstrated?
5. How strong or weak is the scientific base for it?
6. To what extent does it agree or conflict with the current values and experiences of the audience.
7. How many advantages does it offer to the members of the audience?
8. How simple or complex is it to understand and use?
9. How much expenses are involved?
10. How divisible is it? Can it be acted upon in many steps or does it require all in one action?

Situation for campaign

1. How severe is the problem?
2. What has created the problem?
3. What previous efforts have been made to address the problem or opportunity?
4. What were the results of those problems?

Audience of Campaign

1. How many people make up the intended audience?
2. Where are they located, geographically?
3. What are their demographic characteristics?
4. How much do they know about the topic?
5. How interested are they in the topic?
6. How important do they consider the topic?
7. What are their opinions and feelings about the topic?
8. What are their current practices related to the topic?
9. What skills and capabilities d they have and lack about the topic?
10. What are their goals related to the topic?
11. How many families and friends influence their concern about the topic?
12. How many habits and customs influence them concerning this topic?
13. What sources would they normally go for to collect information about the topic?
14. What groups or organizations are of prime importance to them?
15. What mass media sources do they use?

16. What is their opinion about the extension organizations?
17. When do they normally make decisions and take action related to the topic?

SPONSOR

1. Why is the extension organization concerned with the topic?
2. How urgent is the matter from extension point of view?
3. How much priority will the matter receive within the extension?
4. What resources are available to start programs?

Answers to all the questions above will pave the way for conducting or rejecting a campaign.

Stage-2

Identification of objectives

Objective must:

1. Specify the kind and amount of change derived.
2. Pinpoint the intended audience.
3. State the period of time involved.

Change expected in specific campaign

1. Awareness and understanding of people.
2. Skills and techniques of people.
3. Attitudes, interest and values of people.
4. Desire of the people.
5. The intention of the people.
6. Behavior and action of the people.

3rd Stage **Formulation of the plan**

Methods to use:

1. Choose the communication channel.
2. Identify the messages to be communicated.
3. Decide on the amount and format of material to be used.
4. Select a schedule and choose ways to arrange feedback from audience.

Tasks to perform

The planner decides exactly what needs to be done throughout the campaign e.g. demonstration of crops.

Organization

Who will do what and when, is decided by the organization.

Control

Who will monitor and control the campaign must be decided timely.

Some techniques for campaign

Timing the campaign

In deciding when to begin and end a campaign, receive guidance by the patterns in which your audience make decisions and carry out actions concerning the campaign topic. Use of fertilizers in rice crop is an example of short period campaign, whereas safe and effective use of pesticides is an example of long period campaign.

Using slogans and symbols

Effective and relevant slogans use words to express the theme of the campaign, help audience to follow the topic and remember information easily. The slogans must be memorable, easily understandable, versatile, and geared to the interests and needs of the intended audience.

These slogans should be pre-tested and the view of audience should be noticed.

Selecting media and methods

The planner uses certain approaches and guidelines to select a specific media for a specific campaign.

1. An extension worker uses a method which is appropriate to the situation.
2. Communication planners must choose the mixture of media that are suited to a given situation.

   Each media has inherent characteristics which define its strengths, limitations and capabilities.

   a. In demonstration live performance is better than other media.
   b. Are the concepts detailed and complete? If so, audio methods may be limited, if used alone.
   c. Some kind of printed material may be superior to approaches that rely upon memory.
   d. If there is a low level of literacy then oral and radio have advantages.
   e. If there is an emergency such as spread of disease, use speeder media.
   f. If the information is exchanged then face to face methods are advantageous.
   g. How important is hands on practice? Some media can provide it easily whereas others can not.
   h. If awareness is to be created then use the media which is of influence.

i. For public visibility use radio, newspapers, posters and other mass media.

4. The result of analysis can help add a new and creative dimension to the use of communication media.

Campaign media calendar

It is a good idea to prepare a campaign media calendar that shows when each communication method will be used during the campaign period.

Campaign work charts

A work chart identifies each activity that must be carried out before, during and after the campaign period.

Monitoring the campaign

Monitoring during the campaign may deal with aspects such as the adequacy of resources, the degree to which deadlines are being met, how cooperation with partner organizations is functioning, the extent to which media organizations are using the materials which are submitted to them.

20. MARKET LED EXTENSION MESSAGES.

INTRODUCTION

It has now become clear that an increase in production of agricultural commodities will not lead to the corresponding increase of the farmer's income. Instead, such one-sided efforts are likely to become market gluts thereby depressing market prices to the lower ebb, where farmers will not even be able to recover their cost of production let alone some profits. Therefore, if farmers are to increase production, more attention needs to be paid to the fact that their output must be marketed at a rewarding price. Commercialization of small farm sector requires the development of market oriented production, as opposed to the occasional sale of subsistence surplus. Success in commercializing this sector thus depends on orientation of production to meet market demand and on the removal or reduction of a broad range of marketing constraints.

"Guide lines for appropriate market led extension messages"

1. Will the "message" be recognized by the poorest farmers as being useful?

   The following points are to be considered.

   a- Does the "message" meet the small farmers felt needs?

   Meeting a felt need will be easiest when the farmers need is specific e.g. where to obtain improved seed of crops.

   b- Does the message advocate something which is financially advantageous to small farmers?

   Farmers take interest in an innovation which has got promising results and provides an increase in either food supply or income at local prices.

   c- Will the "message" bring recognizable success quickly?

   The messages which give quick results e.g. use of fertilizers on crop to increase production are more likely to be favored by small farmers and the saying "Seeing is believing" becomes true.

   d- Does the message support an innovation that fits into local farming patterns?

   It is important for researchers to provide a technical message which fits in the local farming patterns and Extension Worker must know about the technology that is transferred. Therefore, it is important that new technologies/innovations must fit into local farming pattern as easily and advantageously as possible.

2. Does the "message" deal with those factors that limit production or marketability?

   An innovation must in some way attach the limiting factor or factors in the local farming and marketing system if it is to increase the system's and farmers' productivity. The increase in farms' productivity is the main goal for small farmers.

3. Will the "message" really benefit the poorest farmers?

There is a need to carefully examine the characteristics which will make the "message" most beneficial to the poorest farmers.

The following points may be considered.

a- Does the "message" support an innovation that will utilize the resources that the small farmers already have?

Innovations for small farmers must use the available resources. When outside resources are indispensable, they must be easy to obtain on a reliable basis and they must not be expensive.

b- Is the "message free of risk?

The message may be free of risk so that if the message is floated and poor small farmers suffer due to failure of crop then they lose confidence. Therefore, it is desired that message is free of risk and readily acceptable.

c- Is the "message "culturally acceptable to the poor farmers?

Cultural norms should be checked before putting a message, so as to avoid violating local standards of acceptable behavior.

d- Is the "message" supporting a labor-intensive rather than a capital intensive innovation?

Labor intensive innovations/technologies will tend to be cheap and favored by poor farmers, whereas capital intensive innovators will favor large farmers who have capital.

e- Does the "message" provide an innovation which is simple and understandable?

Characteristics for identification of a simple innovation

i- It resembles the technology already available in the area.

ii- It involves crops that people already know about.

iii- It requires a few inputs.

iv- It should be technically as simple as possible.

4. Is the innovation that the "message" supports, aimed at adequate markets i.e. is it really market led?

The following points need consideration:

a- Are the market prices both adequate and reliable?

The market prices and their fluctuation must be kept in mind before floating a message. The harvest prices are relevant to small farmers, unless they have safe inexpensive means of storage and can avoid using credit payments at harvest.

b- Is the market actually open and available to small farmers?

Small farmers due to some constraints such as mobility, quality and quantity of produce find it difficult to enter the market. To overcome this problem, cooperative marketing with good quality control should be undertaken by small farmer groups.

d- Does the market have sufficient depth?

The "depth" of market here stands for the amount of supply it can absorb without sizeable decrease in price.

5. Is the innovation that the "message" advocates safe for the area's ecology?

The "message" floated does not provide controversial environmental issues like use of pesticides. Pesticides may be used in a safe way and the small farmers may be warned of the side effects of pesticides.

6. Can the message be communicated to small farmers efficiently?

The following points should be remembered:

i. Message should be simple as per KISS rule i.e. Keep It Short and Simple.

ii. Does the message arouse enthusiasm among small farmers?

iii. Is the message requiring a lot of follow up and close supervision?

The message is the information content that is to be sent from sender to receiver. Market led extension message should be in a simple language which is spoken and understood by small farmers. The message should be recognized by the poorest farmers, and is acceptable to them. Financially viable, specific, timely, relatively free of risk and culturally acceptable message will pave way in the development of small farmers. If a poor choice of language, contact organization or channel is made, the message is more likely to fail.

Improving Extension Management

21. PROBLEMS OF AGRICULTURAL EXTENSION ORGANIZATIONS AND WORKERS

22. JOB DESCRIPTION / DUTIES OF EXTENSION WORKERS

23. EXTENSION POLICY FORMULATION

24. EXTENSION MANDATE

25. IMPROVING THE ORGANIZATION AND MANAGEMENT OF EXTENSION

26. TRAINING AND PROFESSIONAL DEVELOPMENT

27. MANAGING HUMAN RESOURCES WITHIN EXTENSION

28. CRITERIA FOR EXTENSION SUPERVISION

29. LEADERSHIP STYLES IN EXTENSION

30. APPROPRIATE PROGRAMMES FOR ADULT FARMERS, WOMEN AND YOUTH

21. PROBLEMS OF AGRICULTURAL EXTENSION ORGANIZATION AND WORKERS

INTRODUCTION

The Agricultural Extension Organization and its workers face a number of difficulties in discharging their duties. These problems / issues varying in nature and depth vary from country to country and places within the country. The severe-ness of these issues is more prominent in developing and underdeveloped countries, especially in those countries where there is no political stability and economic security. In such situations the institutions like agricultural extension organizations are the main focus of criticism and open to undue interference and as such cannot flourish and nor do they have freedom to implement their mandate and policies whole-heartedly. Thus the organizations as well as the workers cannot attain the main objectives, goals and aims and are deprived of their due recognition by the Government and farming community.

These problems are enlisted below:

1- **Appropriate Technology is not available.** Due to lack of political stability, economic security and poor economic resources the public and private institutions cannot work satisfactorily to develop appropriate technology conducive to their own environment, which may be delivered by the Extension organization to the farming community for adoption to bring improvement in their farm yield and income.

2- **Non-effective linkage.** In unstable and insecure conditions the various organizations concerned with agricultural development cannot maintain an effective coordination with research and other institutions. The two way communication process from research to farmers and farmers to research cannot take place properly and no improvement is seen in the farm yield.

3- **Practical Training (Technical).** This aspect is also a very serious setback for Extension organization where the environment is not conducive. The training cannot be managed for the Agriculture Extension workers who are primarily responsible for imparting practical training to the Village Extension Workers and farmers who are the end users for bringing physical changes in the improvement of rural life.

4- **Lack of Mobility.** Mobility is the most important factor for delivering the latest technology along with inputs to the farming community in far flung and remote areas. The focal point of Extension Organization is the illiterate farmers in the country side. To convey or educate them and to demonstrate some new technology at proper the time is of prime importance. Similarly, their problems of immediate concern cannot reach the research organization in time for proper solution. Like-wise, the periodical visit to the field and meetings with farmers, other organizations/institutions and higher ups cannot take place.

5- **Lack of Training in Extension Methods and Communication.** Majority of the extension agents are not fully trained and equipped in this field. This is a sort of applied social science in which specific steps may be undertaken. Command on the process of diffusion, awareness, interest, evaluation, trail and adoption are of vital importance. This further leads to the involvement of innovators, early

adopters, late majority and laggards. Further steps are individual group and mass contacts which are used in different forms. Advanced training in such disciplines may be of vital importance for the Extension workers.

6- **Lack of Essential Teaching and Communication Equipment**. To communicate with the target groups and rural people living in the country in remote places is a difficult job. For an extension organization and worker to use his services judiciously, he should be equipped with some tools and equipment to educate his clients to get expected result in the form of adoption of new technology, better yield land income and ultimately prosperous living conditions.

7- **Organizational Problems (Other works).** Due to weak organizational structure and political interference and low social status of the organization, a number of problems are emerging daily which are a hindrance in the smooth functioning of the department. This is mainly due to lack of education, personal and vested interest of the farmers and employees. Beside this, the organizational staff is involved in other duties which have no relevance to the job.

8- **Lack of Essential Teaching AIDS, Builetins Demonstration Materials.** This aspect primarily is concerned with the allocation of Budget Finances from the state or generated from own resources and technical capabilities of the organization to manage the provision of teaching aids and demonstration materials.

Demonstration is primarily important for rural masses. Mere education or teachings do not convince the farmers unless and until it is properly demonstrated at their farms.

Others factors which influence the efficiency of the organization and its workers are:-

- Low pay structure.
- No proper accommodation in rural areas.
- No civic amenities i.e. Education, health facilities etc.
- No incentive for good performance in the form of awards, promotion etc.
- No accountability.

For an efficient extension organization and its agents, it is essential that necessary steps for improvement or redressing the above constraints may be looked into. These constraints are common to all the developing countries. However, the intensity or priority setting varies from country to country. The Extension organization is a sort of applied social science which is getting importance in bringing desirable changes in the life of rural people involved in farming business to improve their farm production income and ultimately their socio-economic standard of living which later-on leads towards the existence of a prosperous nation.

22.JOB DESCRIPTION / DUTIES OF EXTENSION WORKERS

INTRODUCTION

The extension worker is an agent of change and a link between the farmers and research institutes. In a wider sense the term extension workers includes all the persons working in the extension field. Extension workers should preferably be from a rural background and should have some kind of farming experience. They must have technical ability in the relevant field of agriculture. The Extension worker is the key figure in the whole extension program and because of his multifarious roles he remains a pivot person to uplift the rural life of farming community.

Director General / Directors

Director General/Directors must possess the following qualities:

1. Good Administrator.
2. Good Planner.
3. Good leadership quality.
4. Capable supervisor.
5. Expert in office management.
6. Capable to handle the situation effectively.
7. Cooperative with staff.
8. Have ability of quick decision.
9. Have vision for future planning.
10. Have quality to prepare program on different development projects.
11. Have sufficient knowledge to address farmers' problems.
12. Have ability to monitor and evaluate the projects.
13. Have a contact with the elite and farming community.
14. Capable of handling politician, elites and local leaders.

Functions of Extension Supervisors

1. Must conduct follow up of program being carried out.
2. Must guide individuals and on the job trainings.
3. Provide education to official leaders/farmers to create awareness of development and strategies of realizing the aims and objectives of Agriculture Extension.
4. Must affiliate with Subject Matter Specialist (SMS) and get training.
5. Transfer of technology to farmers.
6. Overall supervision of agricultural activities.
7. Coordinate with Research Institutes in production of action plans.
8. To get involved in the establishment of linkages with the stakeholders.
9. To help farmers in arrangement of inputs.

10. Establish contact with progressive and contact growers and change the attitudes, knowledge and skill of villagers.
11. Bring a psychological change in the behavior of all village people in favor of adopting new ways of life.
12. Make people aware of the conditions prevailing in the progressive countries.

Subject Matter Specialist

The Subject Matter Specialist (SMS) provides technical training and guidance to extension workers, has an important role in the formulation of production recommendations and is a focal person between extension staff and researchers. SMS performs most of his required tasks as team leader and works closely with head of local extension services or District Extension Services/Officer.

Duties of Subject Matter Specialist

I- **Contact with Research**

a. To bridge the gap between Agricultural Research and Agricultural Extension by participation in extension / research committees and workshops, SMS can maintain contact with Research in three ways.

i. By visiting Research farms/stations.

ii. Must keep abreast of development in their areas of specialization through discussion with Researchers.

iii. A third way for SMS is to maintain contact with Researchers in conducting trials at farmers' fields.

b. SMS must have cordial relations with Researchers.

c. SMS must be familiar with scientific development and their applications.

II- **Training Duties**

The second most important component is the training sector.

1. Able to impart training to the field staff and farmers.
2. SMS must encourage Village Extension Worker (VEW) & Agriculture Extension Officer (AEO) to recount his experience and advise them to follow the instructions while conducting training.
3. SMS can give short courses in his own field of specialization.
4- SMS besides training must also guide extension staff in the technical aspects of their work.
5- SMS is primarily responsible for building up the technical know how / skills of the Extension staff.
6- Prepare bulletin, circular for Extension Workers and farmers and cooperate and assist Visual Aid Specialist.
7- Use a variety of extension teaching methods which are best suited to the situation.

III- **Field Activities**

1. SMS must follow up on production problems that are reported to him by extension staff or farmers.
2. SMS must provide technical support to Village Extension Worker and Agriculture Extension Officers in the field.
3. Most important function of the Subject Matter Specialist in the field is to see whether recommendations taught to farmers by Village Extension Workers are correct, to what extent recommendations given to extension workers to teach farmers are, in fact, being adopted or adopted by farmers.
4. SMS should determine the reasons for yield variations and for different agronomic practices in a village.
5. SMS should tour freely according to his plan, study problems and attend field activities.
6. Preparation of plans and participation in monitoring and evaluation of studies.

Duties of Extension Worker

1. Live in the area assigned to him and consider it as "one of his own" and maintain a public office.
2. Freely move in the area, meet with farmers and work with them in the field. Promote coordination and friendship with people as well as nation building departments.
3. Organize the farmers to work with existing farmer groups for establishing new farmers' organizations for development.
   a. Facilitating input supply to increase per unit production and access to quality inputs.
   b. Facilitating marketing of farm produce to get maximum price.
   c. Facilitate the Government in formulating agricultural policies.
   d. Develop long term regional extension programs by involving both adults and youth.
   e. Develop rural leadership and maintain regular contacts with local groups.
   f. Assist local organizations in their educational programs.
4. Transferring modern agriculture technology to the farmers by extension methods/techniques like:
   a. Contacts (individual / group).
   b. Audio visual aids should be employed effectively.
   c. Demonstration (Method/Result).
   d. Development of extension material, videos, extension charts/pamphlets flip charts.
   e. Formulation of programs in such a way that they are acceptable to Research organizations for successful solution.
   f. Exhibition (Melas / Shows).
   g. Training methods which are likely to be used.
   h- Keep up-to-date by establishing a liaison with Agricultural Research system.

5. Problem identification and their solution by Research.
   a. Needs identification / analysis.
   b. Assessment of resource availability.
   c. Assessment of additional resource requirements

6. Coordination with other departments/organizations through vertical and horizontal approaches. Help in evaluation of extension programs, representing the extension service/department to conduct educational program.
7. Monitoring the quality control of agricultural inputs.
8. Studying the situation as it exists regarding:
   a- People participation in agricultural development projects in the area.
   b- Ways of life of the habitants.
   c- Social customs, rituals, values of the community and community problems and possibilities of their solutions.
9. Provide information to individual and groups other than those organized.
10. Encourage club work and youth organizations involving families.

Specific Duties of local Agriculture Extension agent

- Establish himself in an educational process, develop leadership and act as a role model in Agriculture development.
- Serve as an organizer of activities supported by the specialist.
- Organize groups in such a way that learning, planning and action take place effectively.
- To carry out a personal program of continuing education and self improvement.
- To maintain an accurate system of records and reports to assist others for better contribution to his local program.

Agriculture Extension workers are directly involved with the farming community. Agriculture in many countries has generally mixed farming systems. The extension workers will work for the integration of all relevant organizations i.e. Research, Irrigation, inputs and credit supplying agencies and farmers' participation and their involvement in the decision making and marketing of agricultural products. However, education of farmers, assistance to farmers, making farmers groups etc are the problems that can be dealt with by agriculture extension workers. The extension worker must use mass media and audio-visual means, particularly television, radio and mobile cinema van. The extension worker must induct preventive behavior with respect to environmental pollution, soil erosion and health hazards. Agriculture Extension Workers are an important instrument of agriculture development because they establish direct contact with the cluster of farmers even in the remote areas.

23. EXTENSION POLICY FORMULATON

Policy is a plan of action agreed to or chosen by a government or organization to solve problems through setting appropriate goals.

Agricultural extension is one of the policy instruments, which a government can use to stimulate agricultural development. Extension policy can be examined from two perspectives, the first in terms of the importance given to extension and the second, in term of agricultural policy and its impact upon the extension educational efforts.

Agricultural extension policy provides the overall direction for developing an effective Agricultural Extension System. Such a policy should be formally enacted through legislative action so that extension has a stable mandate that can guide its long-term institutional development. If the policy is not codified formally, the extension department may face multifarious problems.

Policy guidelines for extension should reflect the overall national policy towards the agricultural sector and its development.

These guidelines should specify the mission for extension and its basic goals such as increased agricultural production and productivity; increased farm and household income or an improved standard of living for rural households. The guidelines should also specify the intended beneficiaries and the basic program areas to be pursued.

Enough flexibility should be built into the policy to allow for changes in extension activities over time as the agriculture sector develops.

In many countries, the problems of establishing or maintaining an effective agricultural extension service are due to lack of a realistic policy or an unstable policy framework for running the mission of the extension system.

COMMON PROBLEMS THAT HIGHLIGHT THE ISSUES OF EXTENSION POLICY

1. The functions of extension.
2. The clientele to be served.
3. How extension will be financed?
4. Frequent changes in organizational structure and program priorities.
5. Rapid turn over of the extension staff.
6. Lack of coordination between different organizations that undertake extension work.

Moreover, extension must be responsive to changes in the agricultural sector, the drive towards market reforms and shrinking government budgets.

Formulating and enacting a sound, comprehensive and useful extension policy is a difficult task.

ROLE OF EXTENSION IN SUSTAINABLE AGRIUCLTURE AND RURAL DEVELOPMENT AND ITS POLICY IMPLICAITONS

- **Farmers** view extension as
  - a form of assistance to help improve their know-how, efficiency, productivity, profitability and contribution to the good of their families, community and society.

- **Politicians,** planners and policy makers view extension as
  - a policy instrument to increase agricultural production, to achieve national food security and help alleviate rural poverty.

- **Economists** view extension as
  - a policy instrument that will contribute to human capital development and economic growth.

- **To the practitioners,** agricultural extension enhances and accelerates the spread of useful know-how and technologies to rural people.

These activities are expected to lead to increased and sustained productivity, increased income and well being of farm people.

In this connection other factors such as increase in population and environmental concerns should also addressed by the policy makers.

SCOPE OF EXTENSION POLICY

Agricultural extension policy is a part of national development policy in general and of agricultural and rural development in particular. Hence, agricultural extension is one of the policy instruments which can be used by governments for stimulating agricultural development.

FORMS OF EXTENSION POLICIES

1. Provisional Extension Policies.
2. Decrees and Proclamations and
3. Legislated Extension Policies

1. Provisional Extension Policies

This is the most common form of extension policy in most developing countries. In the absence of more formalized or enacted policy, provisional or ad-hoc policy is practiced which changes frequently.

2. Decrees and Proclamations

Decrees and proclamations are policies issued by the head of state. Generally, this approach does not go through the process of consultation and debate involving beneficiaries and stakeholders.

3. Legislated Extension Policies

Extension policies embodied by the country's highest law – making authority e.g. parliament are common in many developing countries. Enacted extension policies are well-organized and financially stable systems that have sustained effectiveness and a cumulative effect.

Examples

- USA Smith Lever Act of Cooperative. Extension Service 1914.
- Japanese Agricultural Promotion Law 1948.
- South Korea Agricultural Extension Policy 1957
- Thailand Agricultural Extension Policy 1956.
- Zimbabwe Agricultural Extension Service was established by law in 1981.

ISSUES THAT EXTENSION POLICY SHOULD ADDRESS

1. Extension Missions and Goals.
2. Extension Approach and Functions.
3. Subject Matter Coverage of Extension.
4. Geographical Coverage.
5. Clientele or Target Beneficiaries.
6. Organizational Issues.
7. Extension Staffing Issues.
8. Extension Funding and
9. Stability.

1. Extension Missions and Goals.

- Promote Agricultural Development through transfer of technology.
- Promotion of Sustainable Agriculture.
- High priority to Human Resource Development (HRD).

The extension mission should be attributed to the organizations involved in extension service.

2. Extension Approach and Functions.

- Extension system should choose one of the best extension approaches for implementing extension policy.
- It should define functions, tasks and programs for extension staff.

3. Subject Matter Coverage of Extension.

- Promotion of food and cash crops.
- Promotion of animal production.
- Promoting entire farming system.
- Sustainable agricultural and rural development.
- Socio economic development messages.

4. **Geographical coverage.**

- Government should define the area for extension working along-with provision of funds.
- All the areas developed, underdeveloped should be covered – poor families should be given preference.

5. **Clientele or Target Beneficiaries.**

- Resource poor farmers and their families.
- Rural Youth and Women.
- Other people engaged in agricultural related activities.

6. **Organizational Issues:**

Management frame work of Agricultural Extension should be improved because it affects the scope, magnitude and structure of extension system including factors such as control, cost effectiveness and impact of extension service.

7. **Extension Staffing Issues:**

How many staff members, what type – their expertise
Salaries, incentives etc. require proper attention so that they work hard.

8. **Extension Funding:**

Stable and sufficient funds should be ensured in the extension policy so that extension mission is not suffered and goals are achieved.

9. **Stability**

Good extension policy should be flexible to ensure stability of the extension system.

24. EXTENSION MANDATE

Mandate of Agriculture Extension

1. Overall Objectives:-

Overall objectives as defined by Kelsey & Hearne "expression end towards which our efforts are directed". An objective in extension is a "direction of movement" or the "product to reach through educational process".

1- **To reach self sufficiency in food and other crops for the country / nation.**

Through transfer of package of technology from research to farmers, the extension service can make them aware of the conditions prevailing in developed countries.

2- **To improve the living conditions of small scale farmers.**

By adopting the measures to increase the yield per acre through best use of agricultural practices, income can be increased.

3- **To generate an exportable surplus of agricultural production/channel to earn foreign exchange.**

Production of fruits, vegetables and other potential crops can make a break through by export promotion.

4- **To pursue Agricultural Development on Sustainable basis.**

For this purpose the Agriculture bio-diversity and Natural Resource Management (NRM) are the proper keys.

5- **To Implement Government Policies regarding Agricultural Development.**

Agriculture policy and plans can be prepared and implemented as a part of agricultural extension mandate.

"Scope for the Mandate"

1) **Improving working conditions of staff through pre-service and in-service training.**

Pre-service training for preparation and producing well-trained personnel in various skills from Agricultural Training Institutes & Agricultural Universities. In-service training to the persons on job is to enhance the skills of the staff so that they can cope with the existing situation prevailing in the field.

2) **Communication with Client /Target Group.**

The target group includes both male and female farmers. Extension service in principle addresses agricultural problems of all categories of farmers, however, it deals with small scale farmers in rendering special activities. The transfer of knowledge involves communications at each step. Therefore, it is important for the extension agent to know the basics of the communication process. Mass communication media including electronic media such as Radio, Television, Internet, printed media such as newspapers, magazines, posters, leaflets, hand outs etc may be utilized effectively.

3) **Coordination.**

Coordination must be with all the departments linked with Agricultural development such as Agricultural Research, Livestock and Dairy Development, On Farm Water Management, Agriculture Development Banks, Cooperatives, Non-Government Organizations (NGOs), Irrigation and Agriculture Engineering (Farm Machinery Organization), and input supplying agencies e.g. seed, fertilizers, and pesticides.

4) **Plant Protection.**

Plant protection is an important issue which is to be addressed. In this connection the staff and farmers training should be arranged and the legislation which is already available maybe implemented and the Quarantine procedures should be adopted by the Government. In-order to combat with the adulteration of pesticides the Vigilance Committee for pesticides should be made at the District level to address the problems timely.

5) **Preparation of Statistical Data**

Crop reporting services should be created so as to provide accurate data regarding:

1- Estimates of cultivated area/production of all crops.
2- Cost of production of various crops.
3- Consumption of food per capita, per annum.
4- Future forecasting of food production, consumption and exports.

6) **Marketing.**

Marketing is the main part of Extension Services' mandate to be discussed as it is concerned with the production process. The following innovations are to be kept in mind for dealing with as a part of mandate.

1- Market Information system (MIS).
2- Market Research (post harvest losses).
3- Establishment of regulated markets.
4- Market legislation.
5- Storage for food, fruit and vegetables crops.
6- Supply and demand situation.
7- Rural markets.
8- Supply of inputs for marketing.
9- Provision of soft loans.

7) **Inputs Supply**

Facilitating role of extension service for supply of agricultural inputs, i.e seeds, fertilizers, pesticides from input suppliers to farmers in a timely manner.

8) **Organizing farmers**

Working with existing farmer groups and organizations and if necessary establishing permanent farmer groups or organizations for facilitating input supply and marketing of crop production.

9) **Dissemination of Extension messages**

Development of extension tools, written extension materials (leaflet, booklets posters, flip charts, video production and programs for Radio and Television) and dissemination of the same to trainers of farmers, farmers, Non-Government Organizations (NGOs) and dealers at field demonstration and field days.

10) **Quality Control of Inputs**

Registration of dealers for chemical inputs, pesticides, fertilizers, seeds, growers for seed production and nurseries, for physical check up of agricultural inputs to ensure quality inputs.

11) **Establishment of Rural Support and Farm Services Centres**

Address the farmers' current production constraints in the area of extension services, planning and input supply. Facilitate a shift to participatory approach i.e. working together with the farmers in the target areas and in cooperation with relevant research institutions, develop and provide technology package.

Mobilize extension service within the target area as an effective support system for Farm Services Centres and making available farm machinery at reasonable prices to the farmers.

Provide on the job training to the rural support and farm services centers to enhance their knowledge and skill for improvement in their overall agricultural activities.

12) **Feed back**

Feed back from the stakeholders is critical for conducting monitoring and evaluation of extension programs. It can be assessed through periodic meetings, individual contacts, reporting system etc.

13) **Monitoring & Evaluation.**

The impact of extension service is judged from crop yields, food production and net on farm incomes of the farmers.

25. IMPROVING THE ORGANIZATION AND MANAGEMENT OF EXTENSION

The effective implementation of extension service usually requires a complex organization. Large size of extension service, maintaining relationships with different actors involved in the agriculture sector, reaching out to the large numbers of farmers for educating them agricultural technology, all affect the type of organization that is needed. For the purpose of extension, an organization is a formal group of people with clearly defined goals, set rules and procedures and a clear division of tasks. Every organization also has a formal structure.

Agricultural Extension services are established for the purpose of educating the rural community with new knowledge and skills by influencing their behavior to improve their living conditions.

Scope and Responsibilities of Extension Service are:

1. Agricultural Production.
2. Marketing, distribution and utilization of farm products.
3. Natural Resource Management
4. Farm Management
5. Improvement in living standards of rural families
6. Youth and women development.
7. Leadership Development.

The characteristics of a strong Extension System are:

1. Effective linkages with research organizations.
2. Legal basis and mission.
3. Stable enabling linkages
4. On-the-job training
5. Adequate field infrastructure
6. Incentives for professional advancement.
7. Effective Communication with staff.

COMMON DEFICIENCIES IN EXTENSION ORGANIZATIONS

1. Failure to establish a sound National Extension Policy.
2. Lack of continuity of extension service programs due to political instability.
3. Weak enabling linkages.
4. Weak organizational structure.
5. Untrained extension staff.
6. Lack of institutional linkages with agricultural research and education.
7. Lack of on-the-job training.

To overcome the constraints and improve efficiency of extension organizations, effective management is required.

Management is defined as the processes by which people, technology, tasks and other resources are combined and coordinated so as to effectively achieve organizational objectives.

Management Functions:

These can be categorized by using the acronym POSDCORB.

Planning: Outlining philosophy, policy, objectives, and outcomes to be accomplished and the techniques for accomplishment of outcomes.

Organizing: Establishing structure and systems through which activities are arranged, defined and coordinated in terms of some specific objectives.

Staffing: Fulfilling the personal functions, which include selecting and training staff and maintaining favorable work conditions. .

Directing: Making decision, embodying decisions in instructions and serving as the leader of enterprise.

Coordinating: Inter- relating the different parts of the work.

Reporting: Keeping those informed of extension activities for whom the extension service is responsible including public and those who provide resources.

Budgeting: Making financial plans, maintaining accounts and management of revenue and keeping cost in line with the objectives.

Responsibility of Managers:

1. Need to obtain recent, relevant information that exists in books, journals and peoples heads.
2. Make decision based on information.
3. Get cooperation from subordinates, peers, superiors and people.

Factors that influence performance and motivation of field workers:

1. Adequate incentives.
2. A secure environment to work in.
3. Good relations with fellow field workers and superiors.
4. Feeling of success in work and its recognition by the superiors.

Dissatisfying Influences

1. Poor inter-personal relationship with supervisor or other fieldd workers.
2. Incompetent supervision.
3. Inefficient administration.
4. Poor working conditions.
5. Problems in worker's personal life.

26. TRAINING AND PROFESSIONAL DEVELOPMENT

DEFINITIONS OF TRAINING:

1. Training is the process of acquiring specific skills to perform a job better (Jucious 1963).
2. It helps people to become qualified and proficient in doing their jobs (Dahama 1979)
3. Process of teaching, informing or educating people so that (1) they may become as well qualified as possible to do their jobs and (2) they become qualified to perform in positions of greater difficulty and responsibility (Van Dersal 1962)

DIFFERENCE BETWEEN TRAINING AND EDUCATION

Training is concerned with those activities which are designed to improve human performance on the jobs that employees are presently doing.

Education is concerned with increasing general knowledge and understanding of the total environment. Education is the development of human mind and it increases the powers of observation, analysis, integration, understanding, decision making and adjustment to new situation (Flippo 1961).

TRAINING APPROACHES:

1. The Traditional Approach
2. The Experimental Approach
3. The Performance based approach

Traditional Approach:

In this approach, the training staff designs the objectives, contents, teaching techniques, assignments, lesson plans, motivation, tests and evaluation.

Experimental Approach:

In this approach the trainer includes experiences wherein the learner becomes active. Experimental training emphasizes real or simulated situations in which the trainee will operate. In this model, objectives are jointly determined by the trainers and trainees. Trainers primarily serve as facilitators, catalysts or resource persons.

Performance Based Approach:

In this approach, emphasis is given to acquiring observable skills for a task. This is mostly task or skilled centered which is practiced by non-formal educational organizations such as extension.

NEED OF TRAINING:

Deficiencies in knowledge, skills, ability and poor educational background of extension personnel necessitates regular training.

TYPES OF TRAINING:

1. Pre- Service Training and
2. In- Service Training.

PRE-SERVICE TRAINING:

Pre-service training is a process through which individuals are prepared to enter a certain kind of professional job such as agriculture, medicine, engineering etc. In general two types of pre-service trainings are available for agricultural candidates:

1. Degree level (at least B.Sc.Hons) offered by University or College.
2. Diploma level (two to three years) offered by schools or institutes of agriculture.

Entry for degree levels is 12 year schooling and for diploma,10 years schooling.

INSERVICE TRAINING:

In-service training is a process of staff development for the purpose of improving the performance of an official holding a position with assigned job responsibilities. In-service training is a problem-centered, learner-oriented and time bound series of activities which provide the opportunity to develop a sense of purpose, broaden perception of the trainees, and increase capacity to gain knowledge and mastery of techniques.

CATEGORIES OF IN-SERVICE TRAINING:

1. Induction or orientation training
2. Foundation training
3. On the job training
4. Refresher or maintenance training
5. Career development training

1. INDUCTION OR ORIENTATION TRAINING:

Induction training is given immediately after employment to introduce the new extension staff to their positions. The aim of this training is that the new employee should know its organization and his other staff members. New employees take interest in orientation.

2. FOUNDATION TRAINING:

Besides technical competence, every staff member needs some professional knowledge about various rules and regulations of the government, financial transactions, administrative capability, communication skills, leadership ability, coordination and cooperation among institutions and their linkage mechanism, report writing etc. Foundation training is made available to employees to strengthen the foundation of their service career. It is usually imparted in the early years of service.

3. MAINTENANCE OR REFRESHER TRAINING:

This training is offered to the trainees to update and maintain their knowledge of specialized subject matter.

4. ON-THE JOB TRAINING:

This ad-hoc or regularly scheduled training is imparted by the seniors to their subordinates. The training is generally problem or technology oriented and may include formal presentations, informal discussions and opportunity to try new skills and knowledge in the field.

5. CAREER OR DEVELOPMENT TRAINING

This type of in-service training is designed to upgrade the knowledge, skills and ability of employees to help them assume greater responsibility in higher positions.

PHASES OF TRAINING

1. Planning phase
2. Implementation phase
3. Evaluation phase

PLANNING TRAININGS

It comprises of several activities of which two are very important:

1. Training need identification
2. Curriculum development

1. TRAINING NEED IDENTIFICATION:

Training need is a gap between what is and what should be in terms of trainees' knowledge, skills, attitudes and behavior for a particular situation. Organizational analysis, individual analysis and group analysis are some procedures for identification of training needs. Techniques include performance appraisal, interviews, questionnaires, tests, analysis of behavior, informal talks, checklist, counseling, critical incidents, recording, surveys and observations for individual analysis. For group analysis transforming buzzing, card sorts, advisory committees, conference, problem clinic, workshop etc are used as techniques.

2. CURRICULUM DEVELOPMENT:

This is the most important part in the training program after a need for training has been identified. The curriculum specifies what will be taught and how it will be taught.

After identifying needs, training need analysis is carried out. Training need analysis process is divided into three analytical phases:

a. Job analysis
b. Task analysis
c. Knowledge and skill gap analysis

A. JOB ANALYSIS

It involves the task identification of a particular job e.g

Job: Agricultural Extension Officer

Tasks are:

1. Supervision
2. Conducting training
3. Planning programs
4. Demonstrational trials and so on.

B. TASK ANALYSIS

Example:
Job: Agriculture Extension Officer

Tasks are:

Conducting training
Component steps
Establish rapport
Introducing the topic
Presenting the subject
Maintaining sequence
Using AV aids in time

C. KNOWLEDGE AND SKILL GAP ANALYSIS:

The knowledge and skill gap analysis is a process of determining the training needs of an individual employee in relation to the important task, steps or components of tasks identified for training. The skill gap analysis determines how skilled employees are on these tasks-steps, how much they differ from desired performance and whether or not they need training when they are able to conduct their tasks efficiently. They need not be trained in these skills.

SELECTING TRAINING METHODS:

A training method is a strategy or tactic that a trainer uses to deliver the content so that the trainees achieve the objectives. Selecting an appropriate method of training is the most important step in training activity.

Training methods selecting criteria

1. Allow active participation of the learners.

2. Help the learners transfer learning experiences from training to the job situation.
3. Provide the learners with knowledge of results about their attempts to improve.
4. Provide some means for the learners to be reinforced for the appropriate behavior.
5. Provide the learners with an opportunity to practice to repeat when needed.
6. Motivate the learners to improve their own performance.
7. Help learners to increase their willingness to change.

These criteria indicate that a single training method will not satisfy the objectives of a training program. A variety of methods are available for selection by the trainers.

METHODS

1. Instructor's Presentation:

The trainer orally presents new information to the trainees, usually through a lecture. Instructor's presentation may include class room lectures, seminar, workshop etc.

2. Group Discussion:

The trainer leads the trainees in discussing a topic.

3. Demonstration:

The trainer shows the correct steps for completing a task or shows an example of a correctly completed task.

4. Assigned Heading:

The trainer gives the trainees reading assignments that provide new information.

5. Exercise

The trainer assigns problems to be solved either on paper or in real situations related to the topic of the training activity.

6. Case Study:

The trainer gives the trainee information about a situation and directs them to come to a decision or solve a problem concerning the situation.

7. Role Play:

Trainees act out a real life situation in an instructional setting.

8. Field Visit and Study Tour:

Trainees are given the opportunity to observe and interact with the problem being solved or skill being learned.

3. IMPLEMENTATION PHASE

Once the planning phase of a training program is completed, then it is time to implement the course. Implementation is the point where a trainer activates the training plan or it is the process of putting a training program into operation.

Steps in implementation

1. PUBLICITY:

Training program is announced by the organizations. Brochures are developed which contain course descriptions. These are sent to different organizations for information and inviting nominations of trainees well ahead of time (3-4 months).

2. Once the training center and organizations agree to implement training, the next step is arranging sources such as sufficient funds for the course and facilities for conducting training in a place, lodging, food, transportation and recreation. All these facilities need to be well managed and coordinated to run the program smoothly.

3. EVALUATION PHASE:

Evaluation is a process to determine:

a. Relevance
b. Effectiveness and
c. Impact of training in the light of objectives.

CRITERIA

1. **REACTION:** Measures how the trainees liked the program in terms of content, methods, duration, trainers, facilities and management.

2. **LEARNING:** Measures the trainee's skills and knowledge, which they were able to absorb at the time of training.

3. **BEHAVIOR:** Is concerned with the extent to which the trainees were able to apply their knowledge to real field situations.

4. **RESULTS:** Are concerned with the tangible impact of the training program on individuals, their job environment or the organization as a whole.

TIPS FOR TRAINING PROGRAMS

PREPARING BUDGET

1. Instructional Material:

a. Class room supplies
b. Visuals
c. Overhead transparencies
d. Slides
e. Films
f. Wall charts
g. Video tapes
h. Blank tapes

2. FEES:

a. Instructors fees
b. Trainees allowance
c. Supporting staff allowance

3. SERVICES:

a. Entertainment/meals
b. Travel
c. Lodging

4. EQUIPMENT:

a. Audio-Visual rent (overhead projector, slide projector, video camera, still camera, white boards, screens) computer, Internet charges, telephone charges etc.

5. FACILITIES:

- Space rent
- Stationery, markers, electricity, water, photocopying.

6. CAPITAL OUTLAY:

Purchase of equipment if any – photocopier- camera etc

7. STUDY MATERIAL:

- Books
- Manuals
- Handouts etc.

8. MISCELLANEOUS CHARGES:

Checklist for the trainers to organize training programs

6 MONTHS AGO:

1. Choose topic and dates
2. Identify audience

3. Specify needs of audience
4. Choose facilities
5. Manage budget/prepare estimates

5 MONTHS AGO:

6. List items of content
7. Contact principle instructors
8. Get mailing list
9. Prepare primary agenda

4 MONTHS AGO:

10. Contact facilitators
11. Send training publicity

3 MONTHS AGO:

12. Prepare reading material
13. Mail registration forms

2 MONTHS AGO:

14. Receive nominations/registration forms and acknowledge receipt of nominations.
15. Determine venue setup

ONE MONTH AGO:

16. Send final agenda to instructors/speakers
17. Make room and transportation arrangements for instructors/trainees
18. Prepare final program schedule
19. Release media announcement if needed
20. Design and print evaluation forms, payment receipts
21. Assign duties for coordinating the training program

BEFORE ONE WEEK:

22. Reserve accommodation for trainees/instructors
23. Purchase training materials
24. Test equipment
25. Prepare charts
26. Photocopy papers/handouts for trainees
27. Visit training site – check suitability of location, rooms, meeting places
28. Test wall space for charts
29. Check furniture, utilities, electricity
30. Arrange logistics
31. Arrange Banners/light refreshments

ONE DAY BEFORE TRINING:

- ❖ Check the training rooms, training material, seating arrangements, equipment, electric points, water and wash room arrangements, logistics, coordinators tasks.

DURING TRAINING:

Monitor the arrangements and program and remove deficiencies

- ❖ Arrange transport for field visits
- ❖ Evaluate on the last day

AFTER TRAINING:

- ❖ Distribute list of participants among trainees i.e. names, addresses etc.
- ❖ Collect un-used material
- ❖ Return equipment
- ❖ Read and analyze evaluations
- ❖ Settle accounts
- ❖ Prepare report
- ❖ Print manuals for dispatching to the participants

EQUIPMENT AND MATERIAL REQUIRED FOR TRAINING

For making the training events effective and interesting some training equipment and materials are required so that the trainees may understand the contents of training clearly and easily.

A. PRE-TRAINING MATERIALS:

For pre-training publicity some banners are required which should be displayed at important places for creating awareness among people and guiding the participants to reach the training venue easily. The banners are usually made of cloth in different sizes according to space and in different colors to attract the people.

Contrast of different colors is:

	CLOTH COLOUR	WRITING
1.	White	Black, Green, Red, Blue
2.	Yellow	Black, Red
3.	Blue	White
4.	Black	Yellow, White
5.	Red	White
6.	Green	White, Red

B. DURING TRAINING – CLASS ROOM MATERIAL:

1 Note books for trainees
2 Reading material
3 Pens, pencils, colors, markers, duster, chalk, white papers, flip charts, other stationery items i.e. drawing pins, paper pins, clips, rubbers, solution tapes, cutter, punch, stapler, files etc

C. AUDIO-VISUAL AIDS:

1. Printed charts, maps, photographs.
2. Video cassettes, audio cassettes
3. Transparencies
4. Slides.

D. EQUIPMENT:

1. Overhead projector
2. Slide projector
3. Photocopier
4. Tape recorders
5. Video players
6. Black boards
7. Flannel boards
8. White boards
9. Flip chart boards

TIPS FOR VISUAL AIDS

1. **VISIBLE:** Should be easily seen by every one.

2. **CONTRAST IN COLOUR:** Good contrast increases visibility.

3. **INTERESTING:** Colors always create interest, as opposed to black and white.

4. **CODING:** Diagrams should be simplified by colors.

5. **LEGIBILITY:** Writings should easily be read.

THE OVERHEAD PROJECTOR:

1. All trainees should see the transparency easily
2. Make sure transparencies are clean
3. Electric power fluctuation should be controlled
4. Spare bulbs should be kept
5. Letter size should be reasonable for reading
6. Use uniform letter size, preferably capitals
7. Give proper margins
8. Turn off the bulb when it is not in use
9. Sequence of transparencies should be maintained

10. Clean the glass and lens before and after use.

TYPE OF CHARTS:

1. **PICTORIAL:** Drawings, actual pictures etc.
2. **GRAPHS:** Line or Bar.
3. **PIE DIAGRAM:** A circle divided into different segments.
4. **FLIP CHARTS:** Writings and drawings on a large size paper.

SLIDE PROJECTOR

1. Slides are made of negatives showing different activities, things etc.
2. Clean the lens before use and keep slides in tray.
3. Check electric supply
4. Keep the slides in sequence and change along with narration
5. Keep slides back in the box after use.

TAPE RECORDERS, VIDEO PLAYERS:

1. Check the cassettes and video tape before use
2. Check electric supply, battery
3. Check that equipment is in order

27. MANAGING HUMAN RESOURCES WITHIN EXTENSION

One of the most significant developments in the field of organization in recent years is the increasing importance given to human resources. In extension, as in any public service, personnel management is affected by several factors within the organization and by a wide range of influence from outside. They all affect the behavior of staff members as well as casual workers. In general, the more extension personnel are responsive to their leaders, believe in extension philosophy and aims and have confidence in the administration, the easier it will be for administration to solve their problems and address differences to maintain a unified organization.

Interest in extension work and pride in the organization by the extension workers are the two important attributes, which an extension administration should strive to develop among its staff.

For developing this belief amongst the personnel more and more attention is to be paid to the motivational aspects of human personality, particularly the need for self-esteem, group belonging and self-actualization. The development of people, their competencies and the process development of the total organization are the main concerns of human resource management.

Extension organizations in the developing countries face the major problems of professional incompetence and lack of motivation among their employees. Furthermore, many of the agricultural extension departments of these countries do not have a well-defined system of human resource management.

Proper planning and management of human resources within extension organizations is essential to increase the capability, motivation and overall effectiveness of extension personnel.

Various dimension of Human Resource Management (HRM) are:

1. Human resource planning for extension
2. Job Analysis.
3. Recruitment and training of extension personnel.
4. Performance Appraisal.
5. Supervision.
6. Management of Rewards and Incentives.
7. Improvement of the quality of work life.
8. Organizational development for extension.

1. Human Resource Planning for Extension

- It forecasts the future personnel needs of extension organizations.
- With the rapid changes in technology needs of farmers, market situation and competitive environment, planning for human resources has become an important, challenging task for extension.
- Human resource planning involves plans for future needs of personnel, their required skills, recruitment of employees and development of personnel.

2. Job Analysis

- Job analysis traditionally done for purposes connected with recruitment, pay, administration and supervision.
- It is an important instrument for developing people in the organizations.
- It requires a systematic collection, evaluation and organization of information about the job.
- Job description is a detailed specification of duties to be performed, responsibilities and working conditions and indicates what is expected of a jobholder.
- Job specification is a profile of the human characteristics needed for the job such as education training, skills, experience and physical and mental abilities.
- Extension organizations in developing countries do not have clearly defined job description or job specifications for extension personnel.
- Job analysis is needed to improve the performance and effectiveness of extension employees.

3. Recruitment and Training of Extension Personnel

- Recruitment means finding of new people to join an organization.
- Recruitment is important in selecting the right kind of personnel for extension service or other organizations.
- Success of extension depends heavily upon selection of qualified, motivational, technically skilled, committed to serve and willing persons to educate rural people.
- Channels of recruitment are advertisements, private placement agencies, professional search firms and educational institutions.
- Most of the extension departments in the developing countries have the policy of promotion or recruiting within the organization for mid and top-level positions like Pakistan and India.
- Selection of personnel starts with making advertisement, inviting applications, scrutiny of applications according to criteria, short listing of candidates, calling for interviews, physical examination and job offer.
- In general, extension organizations in developing countries use a simple knowledge test and brief interviews to select extension personnel.

- Training and Development

- Training is the process of learning the skills needed to do a job. Training programs are directed towards maintaining and improving current job performance.

- Development means gradual increase in something so that it becomes more advanced, stronger etc. Development program seeks to develop skills for future jobs.

- Training starts with the identification of training needs through job analysis, performance appraisal and organizational analysis.

- Once the training needs have been identified, the next step is to organize training programs.

- Training may be pre-service or in-service.

- Training methods include lectures, discussions, role-play, case studies, simulation exercises and others.

- Training based on actual field experience should be emphasized.

- Extension agents need training not only in the technological aspects but also in human behaviors, problems solving, human relations, basic concept of extension, management and sensitivity towards disadvantaged groups.

4. **Performance Appraisal**

- Measurement of effective human resources within an extension organization is the performance of extension personnel.
- Performance appraisal is important for human resource management.
- Performance appraisal is a process of evaluating employee performance in order to guide and develop the employee's potential.
- Extension organization needs to have an open appraisal system to provide feedback and opportunities for open discussion with employees on their performance. This system promotes healthy working climate, employee motivation and provides employees immense potential to grow and develop.

- **Performance appraisal Aims:**

  1. Provides feedback and guidance to employees.
  2. Sets performance goals.
  3. Identifies training needs and
  4. Provides inputs for management of pay administration, rewards and promotions.

- **Steps in performance appraisal are:**

  1. Identification of key performance areas and setting yearly objectives under each knowledge, attitude and practice (KAP) indicators.
  2. Identification of critical attributes for effective performance.
  3. Periodical review of performance.
  4. Discussion of performance with employees and
  5. Identification of training and development needs

- **Potential Appraisal**

  This is a future oriented appraisal by which the potential of an employee to occupy higher positions and to assume higher responsibilities is evaluated. This is helpful in knowing the strengths and weaknesses of staff and motivating them to further develop their skills. Some techniques of potential appraisal include 1. Self-appraisal, 2. Peer rating, 3. The management by objectives approach, 4. Psychological tests and simulated work exercises, 5. Case analyses and 6. Leadership exercises.

- **Performance Review and Counseling**

  An important purpose of performance appraisal is to council and guide employees towards greater job effectiveness. The senior officers provide it to juniors to help them in the analysis of job performance, identification of training needs and finding solution to the problems, which create a hindrance in job effectiveness.

5. SUPERVISION

The major function of supervision is task orientation and concern for employees. Thus, direction and organization of activities, motivation of employees and management of work groups are the important functions of extension supervisors.

- **Direction and Organization.**
  Extension supervisors have to plan the work and maintain a high standard of performance. The whole process of job analysis, identification of key performance areas and performance appraisal will help in planning and organizing extension work. Extension supervisors should be considerate as well as task oriented, involving subordinates in decision making. If they are to be effective they have to give supportive evaluation by enhancing the functioning of work groups.

- **Motivating the Extension Personnel.**
  Motivation is the force that causes us to act in one particular way rather than another. It is the inner drive that is needed for us to make up our mind to act.

  The motivating factors that encourage people to do well in their work are:

  1. **Challenging Work:** Constructive and helpful to people.
  2. **Achievement:** Want for success in what they are doing.
  3. **Recognition of Accomplishment:** Wanting others to know about their work and to have their superior recognize their good work.
  4. **Increased Responsibility:** Many field workers welcome the opportunity to take a decision on action on their own to take extra responsibility.
  5. **Growth and Development as a Professional**: Most field workers want to grow in the mastery of their job to learn new skills and to develop their abilities to the fullest extent in their work.

Effective inter-personal relations for motivating field workers

A supervisor can use the following approaches to positively motivate his staff:

- **Take time to explain**: Explain why task is to be done, encourage him, ask questions.

- **Set clear work standards:** Field workers like to know where they stand and appreciate demands of supervisor for good performance. Give your staff feedback on their performance.

- **Use flexibility in supervision:** Every one is different, one motivates and one field worker may not work with others.

- Appreciate and try new ideas given by your field workers.
- Train your selected subordinates in supervisory work from among the field workers.
- Show friendly interest in the problems of each field worker.
- Show concern over job conditions. Seek ways for improving their conditions of services.
- Allow your staff some personal decision making.
- Utilize follow up to make sure that the work you assigned gets done correctly.

Work group management

Every organization has formal and informal groups. Formal groups are established by the management while informal groups are spontaneous and developed to satisfy mutual interest of the members. Because work groups have a considerable influence on the work situation, supervisors should be sensitive to the needs of the group and develop skills to guide and achieve the group goals, which will benefit the organization and the members. An understanding of group dynamics and their implications for increasing work group performance is essential for extension supervisors.

6. MANAGEMENT OF REWARDS AND INCENTIVES

Development of reward system helps in retaining, attracting and motivating extension personnel. Extension organizations in African and Asian Countries have a poor reward system. The staff is poorly paid and bureaucratic structure of an extension service is main hindrance to designing a better reward system.

- **Rewards and incentive system can be improved in several ways:** Rewarding outstanding performance. On best performance extension agents may be sent for higher education.

- **Improved working condition the field level:** Living condition of field workers may be improved in recognition of their good services.

- **Career planning and development for extension personnel:** A career refers to all the jobs that people hold during their working lives. Career planning is the process by which employees plan their career goals and paths. Career development refers to all of the technical and managerial skills employees acquire to achieve their career plans. Career advancement gives a picture of future opportunities in terms of promotion, which is a motivating factor for performance and development of skills.

7. IMPROVEMENT OF THE QUALITY OF WORK LIFE

Factors such as the nature of the job or the role and involvement of employees in work decisions are important for improving the quality of work life. Job enrichment, job design and role interventions are some methods used in improving the quality of work life. Work environments of extension organizations are poor and need improvement.

- **Job enrichment and job design:** Refers to detailed analysis of the work to know the factors which make it a satisfying experience. Job design aims at improving the quality of work life through treating the employees as human beings.

- **Role interventions:** Through their roles, people are linked with their organizations. This linkage increases organizational effectiveness by integrating the individuals with the organization. Such integration increases mental well being and personal effectiveness.

8. ORGANIZATIONAL DEVELOPMENT

An efficient extension organization needs to develop the capability of responding to changes in relation to its environment. Extension organizations have to cope with changes within and outside the organization, such as changes in farm technology, communication methods, needs of farmers, rural situations export and import of farm produce and market economy.

Organizational development needs tasks, techniques, structures and people for planned changes in the organization. Attitudes, values and practices of organization are changed to cope with the changing situations. It also focuses on team building and conflict management.

Organizational development is a planned effort and is done with the help of an external expert in the behavioral sciences. The process consists of diagnosis of the problem, data collection, feedback of the data to the organization, introduction of specific interventions, evaluation and follow up. Techniques such as sensitivity training, transitional analysis and team building exercises are used to develop interpersonal relationships.

Organizational development is an effective approach that can be used by extension organizations to bring about planned changes and to increase the interpersonal relationships amongst the employees.

28. CRITERIA FOR EXTENSION SUPERVISION

INTRODUCTION

Supervision is a process by which workers are helped to do their jobs with increasing satisfaction for themselves, for the people with whom they work and for the agency. It is concerned with the improvement or growth of extension personnel as individual and educational leaders. In contributing to individual growth, the goal of supervision is the maximum development of the potential capacities of the agents as a person. In contributing to the effectiveness of the worker as an educational leader, its goal is to provide the best possible extension services for the people of the country.

The following criteria have been developed by experts:

Criterion-1

A good supervisor is guided by clear purposes which are:-

i- Analyze the agent's current problems in terms of significance of problems attached, number of people reached and the extent of leadership involved.

ii- To study the findings of Research implication for extension.

iii- To help agents collect and interpret background information and make decisions as the program needs.

iv- To help agents work out a clear set of objectives for their work.

v- To help agents plan methods and determine responsibility of carrying out program.

vi- To assist experienced workers to plan for training of new workers.

vii- Analyze the change of demand upon the extension services and their effect on the role of the extension agents.

viii- Use a written plan for supervisory activities including a statement of objectives and method to reach them.

ix- Write a report of work accomplished for each supervisory visit to a community and use reports to make plans for further work in the area.

Criterion-II

A good supervisor guides agents to get the job done and to carry out the purpose of the agency.

i- Introduction of new workers and assisting them in initial contact.

ii- Familiarization of new agents with working conditions.

iii- Inform new workers about extension policies, procedures and regulations.

iv- Examine with agents the work load to be carried out.

v- Help agents determine priorities for time use.

vi- Interpret administrative view point to Extension Workers.

vii- Help Agriculture Extension staff understand how to use assistance of specialists and other resource persons in program development and teaching.

viii- Help Extension Worker develop effective records and reporting techniques.

ix- Prepare manuals, hand books and guides for training purposes.

Criterion-III

A good supervisor makes a careful analysis of the needs of each individual agent.

1- Observing agents at work and thereby diagnosing if improvement is needed.

2- Analyzing the work load and then determining the work to be undertaken and in the light of finding, determine supervisory needs.

3- Make an inventory of each extension agent's training need based on previous trainings and demand of the job.

Criterion-IV

A good supervisor makes supervision a cooperative activity.

1- Work out with the Agricultural Extension staff agreements concerning staff relationships and satisfactory working.

2- Work out with staff the function of each in overall program development.

3- Develop the staff working procedure which results in program integration.

4- Reports to administration.

5- Work out with agents the plans for specialist help.

6- Use committee to formulate objective criteria upon which the judgement of an agent's work is based.

7- Help agents interpret and apply ideas and skills gained through training.

8- Arrange for less effective agents to observe and participate in well recognized extension program.

9- Plan with individual agents to achieve professional improvement goals.

10- Assist agent to work out his work-plan.

11- Inform agents about graduate training opportunities.

12- Inform agents about study scholarship and fellowship available for them.

13- Bring to the attention of administration employees who are capable of performing at higher level.

VI) Use Committee to assist in planning agents' training programs.

VI) At the beginning of training conference, work out with all agents the agenda to be followed.

VII) Through staff conferences, provide opportunities for agents to share with others the experiences gained through advanced study.

Criterion-V

A good supervisor assumes responsibility to develop staff competence. He motivates professional improvement by:

1- Training agents in job operation and standards.

2- Helping them to get more results from farm and home visit, results and method demonstrations and office calls.

3- To help agents in techniques to conduct the meetings, demonstration or discussions.

4- To help agents to write better circular letter and news articles and deliver better radio and TV talks.

5- To help agents develop skills in using group technique.

6- To help agents make a plan to involve people in a process of program development.

7- To help agents establish and use a definite plan for developing leadership.

Criterion-VI

A good supervisor uses evaluation to improve every major plan of the Agriculture Extension.

1- Determines performance standards.

2- Helps agents carry on informal evaluation to determine the effectiveness of extension programs.

3- Makes reports of study findings to others in extension.

4- Helps agents interpret and use research finding about extension.

5- Lets agents know how they are getting along on the job.

6- Uses agents meetings to discuss evaluation techniques that individual agents have found helpful.

7- Studies the findings from extension and research and their implications for Extension work.

Criterion-VII

A good supervisor evaluates his own effectiveness.

1- Reviews annually with Agricultural extension worker his own supervisory objectives and methods and encourages suggestions for improvements.

2- Develops a self evaluation check list for periodic study of supervisory procedure and results.

3- Provides systematic evaluation of supervisors during meetings with agents.

Criterion-VIII

A good supervisor demonstrates his desire to be of assistance to the agents personally and professionally.

1- Takes an interest in each extension agent as an individual.

2- Keeps agents informed in advance of policy changes that will affect their performance.

3- Periodically discusses with agents, ways to achieve greater job satisfaction.

4- Makes criticism constructive rather than negative.

5- Systematically informs extension administrator with community view point, programs and accomplishments.

6- When job openings occur, reviews each Agricultural Extension Worker's placement situation in relation to maximum use of his capabilities.

29. LEADERSHIP STYLES IN EXTENSION

Leadership is present in every social and political system. All the societies try to achieve goals with a minimum of wasted effort for which skilled leadership is required. Ideally, all people should have the knowledge of leadership. This would result in more effective followers and leaders.

We see many leaders around us. Some are rulers, ruling the countries, others are leading organizations like armed forces, police, civil and technical services. Some have no official status but people own them as their leaders and follow their advice. Even in our families there are leaders; father, elder brothers and in the villages; heads of tribes. In educational institutions, deans, principals, presidents are leaders. In extension organizations, directors are leaders.

DEFINITION OF LEADERSHIP:

Leadership is defined as interpersonal influence exercised in a situation and directed through the communication process to achieve specific goals. It means that leadership involves attempt of a leader (called influencer) to affect (influence) the behavior of a follower or followers in a situation.

EXAMPLE:

When a group is attempting to solve a problem, a usual step is to call a meeting of the group or committee. In calling a meeting the chairman (leader) is attempting to influence the members' behaviors by gating them to attend.

Leadership is a dynamic or changing process and depends upon the situation and skills of a person. To influence other people, effective communication skills are necessary. The other important thing in leadership is that the leader will always direct his group members to attain some goal.

Leadership is an inborn characteristic or learned characteristics

In 1800, leadership was seen as in inborn characteristic. Sons of the kings were accepted as leaders. By the end of 19^{th} century emphasis was laid out on the idea that leadership is learned or acquired in a particular situation.

MOTIVES OF LEADERS:

Despite the responsibilities of leadership, many people aspire to be leaders and influence others. Conversely some people do not want or like leadership.

Those who like leadership are fond of status, rewards, and fame as compared to other people in the group and try for leadership through political or other social process by the help of their followers.

These leaders are self-oriented and their aim is to achieve goals for personal benefits. The opposite of the self- oriented leader is the group – oriented, whose main concern is the accomplishment of group goals rather than individual goals.

CHARACTERISTICS OF LEADERSHIP

1. **Centre of Activity:** A leader is the nucleus of the group. All group members contact him and receive direction from him.

2. **Personality:** A leader is a person who possesses the greatest number or combination of desirable traits.

3. **Induction of Compliance:** The leader is one who guides and directs other people.

4. **Power Differential:** Group members perceive that a particular member has leadership qualities.

5. **Persuasion:** Ability to influence people and see results through emotional appeals rather than exercising authority.

6. **Influence on goal achievement:** A leader has a program and is moving toward an objective with his group in a definite manner.

7. **Initiation of structure:** The initiation and maintenance of structure in expectation and interaction and the function of maintaining operational effectiveness is also relevant to leadership.

LEADERSHIP STYLES:

There are three main styles of leadership.

1. **AUTHORITATIVE:** This kind of leader is a firm person who accepts responsibilities and makes all decisions. "Do what you are told and don't ask questions". In this situation, subordinates or workers lack creativity or initiative in carrying their tasks which make them irresponsible. This style is also known as autocratic.

2. **ANARCHIC OR LAISSER – FAIRE:** This style is based on the assumption that who rules the least, rules the best. Under this style, decisions are made by the group and members are allowed maximum creativity. Under this style the workers get no guidance or direction from the leader. In this style the leader says " I do not care what you do as long as you stay out of my way." This type of leadership gives complete freedom to workers but most are unhappy.

3. **DEMCORATIC OR PARTICIPATIVE:** "This is the job to be done. Let's agree on the best way of doing it". In this style of leadership, decisions are made both by the leader and group members. It is assumed to be the best style of leadership. It provides many opportunities for workers to develop their creativity, decision- making and problem solving skills.

A successful leader varies in his style based on the situation.

PRINCIPLES OF LEADERSHIP DEVELOPMENT

1. Leader considers himself as a member of his group and totally identifies with the group.
2. Leadership develops as the knowledge of group needs, values and aspiration increases.
3. Leadership develops through an early emphasis on action.
4. Leadership consolidates through mutual respect and democratic participation.
5. Leadership develops through demonstration of enthusiasm, honesty and handwork.
6. Leadership develops through proper coordination and control of activities of all component groups and organizations.
7. Leadership develops through proper delegation of responsibility and authority.
8. Leadership becomes effective through continuous monitoring and evaluation.
9. Leadership flourishes in problem situation.
10. Leadership ability increases with practice.
11. Leadership thinks of the future planning.
12. Leadership needs improvement of various skills and depends highly on communication skills.
13. Leadership provides opportunities for group members to take part.
14. Moral character is closely related to leadership.
15. Successful leadership requires the mastery of the human elements of the leadership job.

QUALITIES OF A MANAGEMENT LEADER:

A: **Analyst.** He is an expert in situation analysis
P: **Planner.** He is a good planner
O: **Organizer**. He possesses good organizing capabilities
C: **Catalyst**. He works as a catalyst to take work from others
T: **Technologist**. He is an expert in technical know how.
E: **Extension Specialist/Evaluator**. He is a very good extension specialist and evaluator
R: **Researcher**. He keeps his eyes on future development and conducts continuous research to solve problems and achieve new goals to meet future needs.

COMMUNITY LEADERSHIP

Change is necessary if people are benefited from the technological advances of our society. Major changes in a community require social action and a planned continued effort. For this purpose involvement of community leaders is essential.

In all societies there are men and women who make decisions on behalf of others or who are respected by others, and therefore have some influence on their attitudes and behaviors. Such leaders can be very important for the success of extension work.

Formal and informal leaders: People who hold recognized positions of authority are known as formal leaders. They are easily recognized. Some inherit this position (tribal elders); others are elected and still others are appointed by someone in higher authority.

EXAMPLE: Religious leaders, chairman of cooperatives, chairman of societies, heads of kinship group, local councilors etc. Formal leaders are a good source of cooperation for extension worker.

Informal leaders are not so easy to be identified because they do not hold any particular position of authority. They are the people who are respected by other people, because they have an attractive or forceful personality and because they know how to take best action in a particular situation to solve a community problem. People are influenced by them. If they support a new idea, the community members will be eager to support. Extension agents may find informal leaders through village meetings. Lay leaders and opinion leaders are also used to define informal leadership.

SELECTION OF LOCAL LEADERS

For selecting appropriate local leaders, extension agents should see the following qualities:

1. Initiative to take the lead and give confidence to others.
2. Intellect to understand the issues and identify problems.
3. Industrious and energetic to work unselfishly with other farmers.
4. Influence over others and the ability to persuade and teach.
5. Integrity and a sense of responsibility.
6. Experience in farming and modern agricultural practices.
7. Educated and literate.
8. Reliable and regular attendee of extension functions.
9. Innovative and willing to try out new ideas.
10. Trusted and liked by his fellow farmers.

WORKING WITH LOCAL LEADERS

The extension agent should take great care to develop the qualities mentioned above. His own relationship with the local leaders will be important and he should always try to be available to support and encourage their work. There are four main aspects of working with local leaders, which the extension agent should keep in mind.

1. Inform local leaders of extension activities and proposals for new programs and keep them supplied with extension literature.
2. Visit them as often as is necessary enough to ensure that they are not isolated or left on their own.
3. Train the local leaders in the aspects of extension activities with which they may be unfamiliar. Formal training sessions can be set up at which the leaders will learn about a new practice, how to run a demonstration or how to hold a farmers meeting.
4. Encourage local leaders to take the initiative and to begin to act with some independence. The more they can become recognized and effective, the better chance the extension agent will have of making an impact in the area.

PROBLEMS OF WORKING WITH LOCAL LEADERS

1. The issue of favoritism may arise. Extension agent should maintain balance.

2. The flow of knowledge from leaders to farmers does not always work and the agent should pay particular attention to this aspect.

3. Some local leaders may become over-confident and domineering and use their favored positions with the extension agent for their own individual gain.

4. Some local leaders may be less capable than others and may make mistakes and give wrong advice to their fellow farmers. The extension agent should always ensure that a leader is well prepared before giving him responsibility for extension activities.

30. APPROPRIATE PROGRAMMES FOR ADULT FARMERS, WOMEN AND YOUTH

INTRODUCTION

The success of appropriate programs for adults depends upon the motivation of adults to participate in the program.

Principles for appropriate program for adult farmers

1- Adult learning program should capitalize on the experience of the participants.
2- Adults learning program should adapt to the aging limitations of the participants.
3- Adults should be challenged to move to increasingly advanced stage of personnel development.
4- Adults should have as much choice as possible, the availability and organization of learning program.

Adults learning style

1- Adults are autonomous and self-directed.
2- Adults are goal-oriented.
3- Adults are relevancy oriented (problem centered); they need to know why they are learning something.
4- Adults are practical problem solvers.
5- Adults have accumulated life experience.

Development

Development is a continuous process for promotion of agricultural production and improvement in the quality of life of rural populous.

Pre-request for program Development

1- **Priority of the need based program.**

It is essential that the program chalked out for adults should be prepared in accordance with the performance and needs of the farmers. Therefore, the responsibility of extension agent is that he must introduce innovations in the most understandable, convincing and effective way so that the program are ultimately adopted by the adult farmers who are the end users. In-order to participate in such programs the Extension worker must be a knowledgeable person and be acquainted with the dealings to be made with adults for adult learning, education, programming etc. Other priorities include:

1. Feasibility study.
2. Survey of the area.
3. Internet of farming community.
4. Cost benefit ratio of the program.

Appropriate Programs for Farmers

A- Literacy programs

B- Grow more food programs

C- Education through shows and funfairs

D- Training of farmers.

A- Literacy Programs

Adult farmers are the most important working force for any nation or community. It is therefore necessary that they must be provided with all possible facilities.

Farmers are generally less educated in the rural area therefore there is a need for adult learning program for them and in this connection the staff of agriculture department can play an important role in providing literacy program on farming practices.

B- "Grow More Food" Program

"Grow more food" is the cry of the day and the countries who are self-sufficient are powerful than the countries with food deficit. Therefore, the program must be chalked out to enhance the production of fruits, vegetables and other crops.

The following programs if launched with true spirit can provide break through.

1- Crop maximization programs.

2- Fruits and Vegetables production projects.

3- Range management programs.

4- Social forestry projects.

5- Appropriate use of farm machinery at farmers' fields.

6- Appropriate irrigation system and optimum use of water for irrigation.

7- Safe and effective use of pesticides through Integrated Crop Management.

8- Projects for provision of inputs for crop production.

9- Farm forestry projects in-order to take measures to avoid pollution of environment.

10- To keep their knowledge up-to- date and to get new knowledge to keep pace with other countries.

Income Generating Schemes

These schemes includes:-

- Silkworm rearing (Sericulture)
- Honey Bee keeping.
- Fish farming.
- Fruits and Vegetables preservation.

- ❖ Poultry rearing.
- ❖ Mushroom cultivation.
- ❖ Flower production (Floriculture).
- ❖ Medicinal plant cultivation.
- ❖ Small Cottage Industries.
- ❖ Livestock products.

C) **Education through Shows & Funfairs**

Agricultural shows and funfairs are useful in several ways.

1- They offer a good opportunity for learning about the agriculture produce and a good opportunity for advertising the produce of the farm business.

2- These shows and funfairs encourage quality competition among the growers of all crops.

3- The farmers participating in these shows discuss farm technology with their fellow competitive farmers and exchange of information takes place.

4- Such occasions are a source of motivation to quality products in farming.

5- The shows are regarded as mass media of a social kind to put across the extension messages.

D) **Training of farmers**

Training is an essential component for leadership development, especially for young farmers. The following traits of trainings may be considered for improvement of skills.

I- Seasonal training for specific crops i.e. Wheat, Oilseed, Maize, Paddy and Vegetables.
2- Exposure visits to other farmers.
3- Farmers visit abroad.
4- Training in use of best agricultural practices.
5- Training in Integrated Crop Management. (ICM)
6- Training in minimizing post harvest losses.
7- Training in production of vegetables through tunnel technology.
8- Farmers exchange programs within the country.

Agriculture Programs for women.

Rural women play a critical role in the production of food for the household (They work 12-16 hours per day throughout the year) but unfortunately their work / labor is not recognized in post harvest activities, in livestock care or in cash cropping. Women's agricultural activities are changing and agriculture is becoming "feminized" because of mounting demographic pressures on the land, changing weather conditions,

environmental degradation resulting in increased poverty and males migrating from farms.

The following appropriate programs can be initiated for women folk

1. Kitchen gardening programs.
2. Sowing of crops and production technology.
3. Application of farm yard manure and its judicious use.
4. Poultry production for house-hold and commercial basis.
5. Mushroom cultivation for house-hold and commercial basis.
6. Bee keeping for house-hold and commercial basis.
7. Fruit and vegetable preservations for house-hold and commercial basis.
8. Compost making in-order to make the soil rich in organic matter.
9. Harvesting of crops to minimize post harvest losses.
10. Store grain pest management through modern technologies.
11. Livestock management to yield better output.
12. Integrated crop management to get the product free of pesticides.
13. Grazing / feeding of cattle.
14. Milking of milk animals through modern machines.
15. Drying of fruits and vegetables in-order to avoid wastage.
16. Basic health training programs.
17. Child care programs which aim at better health.
18. Nutritional programs to combat with diseases and nutritional deficiencies.
19. Small cottage industries such as making of baskets, mats, handicrafts, sewing, cutting, embroidery, knitting etc.
20. Advancement of credit to rural women in-order to start their business in different set ups.
21. Decision making process for programs through women organizations.

Programs for Rural Youth

Rural youth is part of the populace within the age group 15-24 years and who are living in rural areas. They are either unpaid or low paid, unemployed or have no skills in the appropriate technology. If we want to use their services then an opportunity should be provided to them for improving their skills. Emphasis should be on skill development.

1- Agricultural planning.
2- Agricultural crops production technology.
3- Rearing of livestock and their management.
4- Bee keeping.
5- Training in Horticultural Crop production.
6- Floriculture.

7- Fish farming.
8- Mushroom production.
9- Sericulture.
10- Picking and Packing of Fruits and Vegetables.
11- Marketing of Farm Produce.
12- Raising of Fruit Nurseries.
13- Budding, Grafting and Pruning Skills.
14- Training in Integrated Crop Management.
15- Safe and effective use of pesticides.
16- Organic farming.
17- Fruit preservation.
18- Cottage Industries.
19- Fruit Nurseries.
20- Flower Nurseries.
21- Forest Nurseries.
22- Seed Production.
23- Business Management.

Current Trends in Extension

31. PARTICIPATORY APPROACH IN EXTENSION

32. PARTICIPATORY RURAL APPRAISAL

33. MEASURES FOR INCREASING FARM PRODUCTION

34. PROBLEM SOLVING

35. INTERNATIONAL ORGANIZATIONS SUPPORTING AGRICULTURAL EXTENSION

31. PARTICIPATORY APPROACH IN EXTENSION

There is a growing recognition that the positive and purposeful change for low income groups is only possible when people themselves are encouraged to identify their most pressing problems and to actively participate in solving these problems. Traditional ways of working with people are now outdated. New attitudes and skills on the part of extension agents are essential to improve skills of their clientele.

Most fieldwork for community development or extension activities has three phases i.e. planning, implementation and evaluation.

The participatory approach, "directly involves members of the community in these three steps". Instead of decisions being taken and implementation being imposed by the outsiders or those in higher authority, the community and its leaders are encouraged and given opportunities so they can:

- Identify their own needs.
- Plan how to meet these needs.
- Have decision making power to call in the particular resources which they feel are appropriate in meeting their needs.
- Experience either success or failure of their own planning as well as the physical efforts of implementation.
- Evaluate and reflect on the causes of success or failure.
- Feed the results of that self-evaluation back into a new planning action cycle.
- As a result of these experiences, acquire the necessary skills to sustain community development efforts on their own.

Thus, when using the participatory approach, field workers encourage communities to experience self-determination in learning by doing.

REALIZATION OF COMMUNITY APPROACHES

The need for this approach in the fieldwork came with the realization that not much has changed in the lives of many poor people, despite various programs of assistance. Once the assistance is withdrawn, the situation reverts to what it had been. This is because the mode of assistance failed to help people become self-reliant, realize their own capabilities or improve their skills.

Basic principles in participatory approach

1. Illiteracy and poverty do not necessarily mean inability to think and act.
2. If people are helped to improve their own welfare through providing opportunities they will turn into self-reliant communities. With lasting changes, pace of development will increase more rapidly.

AIMS OF PARTICIPATORY APPROACH

1. To persuade people that, by their own efforts, they can do much to improve living conditions by the wise and effective use of community resources, material and human power.
2. To develop cultural needs (adult literacy) social welfare (improved public health, nutrition) as well as direct productive services (e.g. input supply, marketing etc).
3. To encourage every individual to participate in community affairs especially in those matters relating to his or her livelihood.
4. To develop the whole community, women as well as men, poor as well as less poor, laborers and tenants as well as land owners.

Examples

1. In India, Gurgeon Experience (1920-28).
2. Village Agricultural Industrial Development Program Pakistan (V-AID 1952-1961).
3. Rural works program in many countries.
4. Cooperative Societies.
5. Water Users Associations.
6. Animation Rurale Senegal (1959).

Presently, nearly in all the countries participatory approaches are practiced for agricultural, health and rural development.

Duties of Extension Agents in Promoting Community Promotion:

The participatory approach, though gaining wide acceptance, is still very much in the process of being developed. The approach requires the intervention of extension agents who can facilitate the process by working with the community in-order to:

- ❖ Make people critically aware of their situation and their potential capabilities to solve problems.
- ❖ Guide people in planning, implementing and evaluating projects.
- ❖ Train people in self-reliance and sustained efforts to improve the quality of their lives.

The participatory approach, however calls for change agents becoming skilled in encouraging community people to discuss problems together, drawing on their own experience and arriving at their own decisions. It means shifting control over to the people, nourishing their abilities – and stepping in only with specific advice and leadership when it supports the common effort.

A Filipino said, "the change agents must be like waves on a sea: made of the same water, but rising above the water according to the needs of the situation and merging into the water again when the need is over".

A few of the change agents will understand the participatory approach better once they use it in their work. Some of them may already have the knowledge about the essence of participatory approach. Some agents might get upset as they may consider this approach

as a threat to their authority and may feel that they have lost their position in the top down system.

TRADITIONALISM IN COMMUNITIES

Most communities are accustomed to their traditional position of being mere recipients of ready-made planning from above for delivering goods and services. This coupled with natural traditionalism may make villagers suspicious of the participatory approach, because people have not been given the opportunity to work on this aspect of development. They may feel more secure having outsiders run programs. This maybe a problem to which the change agents should give more attention. They should patiently work with opinion leaders so that gradually people will recognize the importance of this work. When there is change in human behavior other changes are easy.

LOCAL POWER STRUCTURE FEELS THREATENED

Unless well-managed from the beginning; another source of problem within communities will come from local power structure i.e. well off people who feel their authority is being threatened. Change agents should also include these people as partners of community development through involving them in the process of planning, implementing and evaluating.

SOCIAL PARTICIPATION METHOD

The social participation method involves the listing of participants in volunteer associations in the community. Power actors are those who are holding formal positions in voluntary associations and those who are participating in their activities.

Procedures – Social Participation Method

1. Select key volunteer associations.
2. Obtain list of association participants.
3. Compare and determine overlaps.
4. List power actors with most participation.
5. Update regularly.

This method identifies visible participants in various activities of voluntary associations. If a number of voluntary associations are studied, one can determine the overlap of membership among the various volunteer associations. This tends to identify members who become highly involved in action phase of voluntary associations.

A TYPOLOGY OF PARTICIPATION – HOW PEOPLE PARTICIPATE IN DEVELOPMENT PROGRAMMES AND PROJECTS

TYPOLOGY	COMPONENTS OF EACH TYPE
PASSIVE PARTICIPATION	People participate when they are told what is going to happen or has already happened. It is a unilateral announcement by an administration or project management without listening to people's responses. The information being shared belongs only to external professionals.
PARTICIPATION IN SUPPLY OF INFORMATION	People participate by answering questions posed by extractive researchers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings as the finding of the research are neither shared nor checked for accuracy.
PARTICIPATION THROUGH CONSULTATION	People participate by being consulted, and external agents listen to their views. The external agents define both problems and solutions, and may modify these in the light of people's response. Such a consultative process does not concede any share in decision making, and professionals are under no obligation to accept people's views.
PARTICIPATION THROUGH PROVISION OF MATERIAL INCENTIVES	People participate by providing resources, for example labor, in return for food, cash or other material incentives, Much on- farm research falls in this category, as farmers provide the fields but are not involved in the experimentation or the process of learning. It is very common to see this participation, however, people take no interest in activities when the incentives end.
FUNCTIONAL PARTICIPATION	People participate by forming groups to meet pre-determined objectives related to the project, which can involve the development or promotion of externally initiated social organizations. Such involvement does not tend to be at the early stages of project cycles or planning but rather after major decisions have been made. These institutions tend to be dependent on external initiators and facilitators but may become self-dependant.

INTERACTIVE PARTICIPATION	People participate in joint analysis which leads to action plan and the formation of new local institutions or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and makes use of systematic and structured learning processes. These groups take control over local decisions, therefore people have a stake in maintaining structures or practices.
SELF MOBILIZATION	People participate by taking initiative independent of external institutions to change systems. Such self-initiated mobilization and collective action may or may not challenge existing inequitable distribution of wealth and power.

32. PARTICIPATORY RURAL APPRAISAL

A growing awareness of the failures of conventional or traditional development approaches in meeting the needs of resource poor people has led to the exploration of alternative methodologies for investigating resource management issues and planning, implementing and evaluating development activities.

Participatory approaches such as Participatory Rural Appraisal (PRA) offer a creative approach to information sharing and a challenge to prevailing biases about the knowledge of the rural people. The generation of potential solutions should be developed for research with their assistance.

Participatory Learning and Action (PLA) is an umbrella term for a wide range of similar approaches and methodologies including PRA and Farming System Research (FSR) etc. The common theme to all these approaches is the full participation of people in the processes of learning about their needs and opportunities and in the action required to address them.

What is Participatory Rapid Appraisal?

Participatory Rapid Appraisal (PRA) is a specific form of Rapid Rural Appraisal (RRA) research technique developed in the late 1970's and early 1980's by researchers in international development as an alternative and complement to conventional sample surveys. PRA is a form of learning from and with community members to investigate, analyze and evaluate constraints and opportunities and make timely decisions regarding development projects. It is a method by which a research team can quickly and systematically collect information for:

- The general analysis of a specific topic, question or problem.
- Needs assessment.
- Feasibility studies.
- Identifying and prioritizing projects and
- Project or program evaluations.

PRA is applied most effectively in relatively homogeneous rural communities, which share common knowledge, values and beliefs. It may also be used in complex urban societies. Its short duration and low cost also make it possible to carry out a series of PRAs rather than having to rely on the results of one large survey.

PRA Defined.

It is defined as a mix of approaches and methods to enable local people to share, enhance and analyze their knowledge of life and conditions, prepare plans and act on them. It is carried out in a community by multidisciplinary team which includes community members.

It requires attitudes favoring:

- Participation.
- Respect for community members.

- ❖ Interest in what they know, say, show and do.
- ❖ Patience, not rushing and not interrupting.
- ❖ Listening not lecturing.
- ❖ Humility.
- ❖ Methods, which empower community members to express, share, enhance and analyze their knowledge.

Main Features of Participatory Rapid Appraisal:

1. **Triangulation:**

   - ❖ Composition of a multidisciplinary team i.e. scientists, sociologists, economists etc.
   - ❖ Variety of sources of information including men, women, insiders and outsiders.
   - ❖ Mix of techniques and tools.

2. **Flexibility and Informality**

   Plans and research methods are semi-structured and are revised, adapted and modified as the PRA fieldwork proceeds.

3. **In the Community**

   The main aspect of the PRA is learning from, with and by members of the community. Involving community members can greatly facilitate interpretation, understanding and analysis of collected data.

4. **Ignorance of Un-necessary details**:

   The PRA team avoids the unnecessary details, accuracy and over collection of data which is not really needed for the purpose of PRA. The team asks itself "What kind of information is required, for what purposes and how accurate does it have to be"

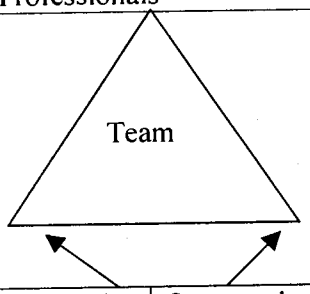
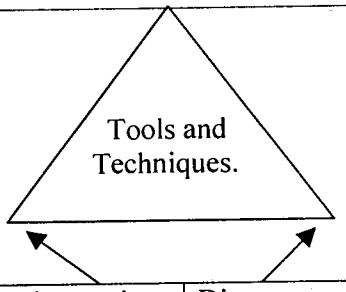
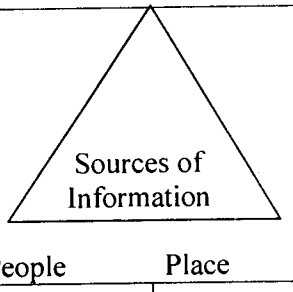
5. **On the Spot Analysis**:

   Learning takes place in the field and the analysis of information gathered is an integral part of the fieldwork itself. The team constantly reviews and analyzes its findings in-order to determine in which direction to proceed.

6. **Offsetting Biases and Being Self Critical**

   The PRA team actively seeks out the poorest, women and other disadvantaged groups in remote areas. It avoids talking to only those who are well off and better educated. The team should also be careful in analyzing its own biases in-order to prevent the PRA from getting involved in un-necessary events.

TRIANGULATION

Multidisciplinary Professionals		Interviews/discussion		Events and Processes	
					
				People	Place
Insiders/ Outsiders	Community members	Observation	Diagrams		

PRA versus Other Research Methods

Characteristics Elements	PRA	Other Research Methods
Duration	Short	Long
Cost	Low to Medium	Medium to High
Scope	Wide	Limited
Integration	Multidisciplinary	Weak
Structure	Flexible, Informal	Fixed, Formal
Direction	Bottom up	Top down
Participation	High	Low
Methods	Basket of Tools (many)	Standardized
Major Research tool	Semi-structured interview	Formal questionnaire
Sampling	Small sample	Random sampling
Statistical Analysis	Little or none	Major Part.
Individual Case	Important, Weighted	Not important
Formal Questionnaires	Avoided	Major part
Organization	Non-hierarchical	Hierarchical
Qualitative Description	Very Important	Not important
Analysis/Learning	In the field and on the spot	At office.

PRA Techniques:

PRA makes use of a wide range of techniques, which are also known as a basket of techniques. They are:

1. Secondary data review.
2. Direct observation.
3. Semi structured interviewing.
4. Focus Group discussion.
5. Pair wise ranking. Problem identification and prioritizing by community.
6. Wealth ranking – placing in order, rich – poor.
7. Mapping and modeling.
8. History and future (Profiles)
9. Transect walks – get out to see landscape.
10. Seasonal calendars
11. Livelihood analysis

12. Flow Diagram Relationship among economical, political and cultural factors.
13. Ven diagrams.
14. Pie charts
15. Stories
16. Case studies.

All the techniques cannot be used at a time. Research team selects appropriate tools for its work.

Application of PRA methods for Farmers Participatory Research:

Methods	**Applications**
1. Social Maps:	❖ Location of changes and adoption of new technologies ❖ Household listings for sampling ❖ Inventory of vital social resources, local group etc. ❖ Spread of technologies in neighboring communities.
2. Farm Sketches and Resource Maps:	❖ Inventory of vital natural resources, infrastructure etc. ❖ Changes in productivity of field, intensity of use of resources degradation. ❖ Changes in rates of adoption, adaptation and rejection of farming practices, indigenous technologies etc.
3. Mobility Maps and Network Diagrams:	❖ Migration Patterns. ❖ Labor opportunities. ❖ Key individuals and their locations.
4. Trend Analysis time lines, crop biographies:	❖ Major trends and key events in the lives of local people. ❖ Influence of external intervention ❖ History of introduction of major crop varieties.
5. Seasonal Calendars:	❖ Time and amount of labor demanded. ❖ Seasonal patterns of production and consumption, income and expenditure, debt and credit, employment. ❖ Seasonal patterns of rainfall, pests, diseases etc.
6. Daily Activity Profiles:	❖ Daily work patterns and responsibilities of women and men.
7. Matrix Scoring	❖ Systematic comparison of technologies, resources, land uses etc. according to local criteria. ❖ Quantification of benefits according to local criteria. ❖ Classification and use of local land type.
8. Systems flow and impact diagrams	❖ Impact of interventions or adoption of new technologies. ❖ Changes in diversity of livelihoods. ❖ Flow of resources and information in and out of village and farm.

9. Wealth Ranking	❖ Changes in welfare. Determining beneficiaries and non-beneficiaries. ❖ Identification of potential focus groups. ❖ Distribution of impacts on various households.
10. Village meeting and Exhibitions	❖ Sharing analysis and triangulation of findings. ❖ Farmer to farmer exchanges. ❖ Preparation and planning of research activities.
11. Semi-structured Interviews.	❖ Description and analysis of local criteria perception and priorities. ❖ Changes in input costs, wage labor rates, land use etc. ❖ Investment in new technologies.
12. Venn diagrams.	❖ Frequency and strength of interaction between the various farmer groups and other grass root organizations and between local and external organizations. ❖ Perceived importance of external support organizations to local people.
13. Pie Diagram	❖ Resource and land use patterns and changes.
14. Team Contracts, Reviews and Discussions.	❖ Multidisciplinary teamwork and effective group dynamics.

Description of PRA tools:

Tool	Description
1. Secondary Sources:	Files, reports, maps, aerial photographs, satellite imagery, articles and books.
2. Semi-structured interviews:	Mental or written checklist, open ended and flexible.
3. Key informants:	Who are the experts and how to locate them (local resource persons)
4. Groups:	Various kinds (causal, specialist/focus; deliberately structured, community/neighborhood); important element of PRA.
5. Do it yourself:	Asking to be taught; being taught and performing village tasks.
6. They do it:	Villagers as investigators and researchers; they do the analysis and present the results.
7. Participatory analysis of secondary sources:	For example; analysis of aerial photographs to identify village conditions.

8. Participatory mapping and modeling:	Local people use the ground, floor or paper to make social, demographic, health, natural resources, service and opportunity and farm maps or construct three dimensional map of their land.
9. Transect walks:	❖ Walking with or by local people through an area, observing, asking, listening, discussing, identifying different zones, soils, land use, vegetation, crops etc seeking problems, solutions and opportunities and mapping and diagramming the zones resources and feelings. ❖ What impact was indicated in terms of training and increasing yield in the objective and what has been achieved? ❖ How the funds have been utilized. ❖ Have the purchases been made according to set procedures.
10. Time line trend and change analysis:	Chronologies of events, peoples' accounts of the past, and how things have changed.
11. Oral histories and ethno biographies.	Oral and local histories of crops/animal and people living in the village.
12. Seasonal calendars:	By season or month to show seasonal changes.
13. Daily time use analysis:	Indicating relative amounts of time of activities.
14. Livelihood analysis:	Stability, crises and coping, relative income, expenditure, credit and debt multiple activities often by month/season.
15. Participatory linkage analysis:	Linkages, flows and connections (cause-effect-local response analysis).
16. Institutional or Chapati or Venn Diagramming:	Identifying individuals and institutions important in and for a community, or within an organization and their relationships.
17. Well-being and wealth grouping ranking:	Identifying groups or rankings of households according to well being or wealth leading to the identification of key indicators.
18. Analysis of difference:	By gender, social group, wealth/poverty occupation and age, identifying difference between groups, including their problems and preferences. Contrast comparisons, asking one group why another is different or does something different.
19. Matrix scoring and ranking:	Matrices and seeds to compare through scoring e.g varieties, development alternatives.

20. Estimates and quantification:	Local measures, judgements and materials sometimes combined with participatory maps and models, matrices, cards scoring and other methods.
21. Key probes:	Questions which can lead directly to key issues such as what are the major problems in agriculture?
22. Stories, Portraits and case studies.	Household history and profile, coping with a crisis, how a conflict was or was not resolved.
23. Team contracts and interactions.	Contracts drawn up by team with agreed norms of behavior, modes of interaction within teams, including changing pairs, evening discussions, mutual criticism and help, how to behave in the field etc.
24. Presentation and analysis	Maps, models, diagrams and findings are presented by local people, or by outsiders and checked, corrected and discussed.
25. Sequences	The use of methods in sequence e.g. participatory social mapping leading to the identification of key informants or analysts or leading to the sequence of household lists, wealth or well being ranking or grouping-focus groups – matrix scoring and preference ranking.
26. Participatory Planning, budgeting implementation and monitoring.	Local people prepare their own plans, budget and schedules, take action and monitor and evaluate progress.
27. Group discussion and brain storming	This is done by local people alone, by focus groups of local people, by local people and outsiders together or by outsiders alone.
28. Short standard schedules or protocols	Either for very short and quick questionnaires or to record data e.g. census information from social mapping in a standard and commensurable manner.
29. Report Writing	This should be written as soon as possible preferably in the field before returning to office or headquarters.

Sectors in which PRA has been applied

1. Natural Resources Management (Watershed, soil and water conservation etc).
2. Agriculture including irrigation.
3. Poverty and social programs.
4. Health and Forest programs/

Possible Shortcomings of PRA

- ❖ Difficulty of finding the right team. Difficulty of finding the right question to ask.
- ❖ Difficulty in finding the poorest and least educated, especially women.
- ❖ Failure to involve community members.
- ❖ Lack of rapport with community.
- ❖ Seeing only part of problems and not getting the full picture.
- ❖ Being misled by myths and gossip.
- ❖ Generalizing based on little information or few informants.
- ❖ Overlooking the invisible.
- ❖ Lecturing instead of listening and learning.
- ❖ Imposing our ideas.
- ❖ Neglecting women.

FAMILY OF PLA

AEA	Agro-ecosystems Analysis
BA	Beneficiary Assessment
DELT	Development Education Leadership Team
FPR	Farmer Participatory Research
PALM	Participatory Analyses and Learning Method
PAR	Participatory Action Research
PRM	Participatory Research Methodology
PRA	Participatory Rural Appraisal
PTD	Participatory Technology Development
PFR	Planning for Real
PD	Process Documentation
RA	Rapid Appraisal
RAAKS	Rapid Appraisal of Agricultural Knowledge System
RAT	Rapid Assessment Techniques
RFSA	Rapid Food Security Assessment
RRA	Rapid Rural Appraisal
TFF	Training for Transformation

33. MEASURES FOR INCREASING FARM PRODUCTION

INTRODUCTION

There are a number of problems which become/create hindrances in the enhancement of farm production. Almost all the developing countries face the same issues but the intensity may vary from country to country, depending on the location of these countries within the different ecological zones of the world.

Some of these problems are natural which have been developed over a period of time, while others are man made which have not been taken care of in advance and later on became a serious threat to yield increase e.g. water logging and salinity problem in several countries. Some of these are due to poor management or lack of proper planning while others may be due to lack of technical personnel and poor finances of that country.

A list of these problems is summarized in the following paragraphs.

1- **Improvement of Soil**

Soil is the basic factor of crop production. Universally, countries having good soils are enjoying higher yields while others who manage the soil and avoid its further deterioration also get the maximum yields. At the same time there are countries which do not give much attention to the maintenance of their soils and thus suffer from less production per unit area and sometimes starvation. Therefore, it is of utmost importance that priority should be concentrated on the improvement of soil by judicious use of soils for raising crops, crop rotations, control of soil erosion, maintaining the soil fertility level and so on.

2- **Irrigation Facilities/Water Management**

This is the second most important gift from "Nature" which plays a vital role in the farm production. Some of the countries have been bestowed with irrigation facilities in the form of rivers, canals, distributaries and ultimately water courses for delivering water to the fields. While others depend on sub surface and ground water in the form of wells and tubewells. Thus, this blessing should not be disguised and the available water should be judiciously used to meet the various crop requirements and avoid the fear of water logging in the low laying areas. A proper open drainage system is of paramount importance to check the fear of water logging.

3- **Improved Implements.**

The use of improved implements for agricultural development have gained much popularity in the past fifty to sixty years in the underdeveloped countries, which has given a lot of relief to the farm laborers and facilitated their work enormously. Tractors along-with various types' of ploughs, threshers, equipment for corn shelling, rice planters, spraying equipments, trenches and dozers for soil leveling are some of the examples which play an important role in the increase of farm production per unit area, and bringing more area under cultivation for more yields.

4. **Improving Quality Seed varieties of various crops**

Introduction and use of quality and hybrid seeds have revolutionized the yields in the developed countries. The use of quality seeds is still a serious problem for the developing countries because they are still depending on import whereas their economy does not permit because of no foreign exchange/reserves or of less priority for import. Much

attention is to be given for production of quality seeds within the country for increased yields of cereals especially wheat, maize, rice, fruits and vegetables to produce more for domestic consumption to save foreign exchange as well as produce surplus to earn foreign exchange through exports.

5. Organic and inorganic fertilizer usage

With the tremendous increase in population, soil degradation and limited use of improved seeds and farm machinery, the demand for use of manure and chemical fertilizers have increased manifold to meet the food and feed requirements. The growth rate of population in developing countries is more or less 3% while the agricultural production is less which cannot meet the food requirements. Moreover, the standard of living is increasing and people are becoming more conscious about their nutrients intake in the form of meat and milk protein, carbohydrates, vitamins and minerals in the form of cereals, fruits and vegetables. This has necessitated the use of chemical fertilizers to meet these requirements. With the use of Farm Machinery especially tractors, the production of farm yard manure has also decreased. This compelled the farmers to use more artificial fertilizers to get the higher yields. In addition, the Agricultural Research and Extension services delivered the messages and importance of these fertilizers in the form of Nitrogen, Phosphate, Potash, in flat and combination form along-with minor elements which accelerated the use of artificial fertilizers. Simultaneously, the use of green manure, compost making and foliar application of liquid fertilizers has a great momentum in the recent years.

6. Plant Protection measures against insects, pests and diseases

The incidence of increase in insects, pests and diseases is another major factor which, if not controlled in time, results in great losses in yields of all crops. This problem also goes up-to storage in the form of store grain pests, rodent and fungal attacks.

A proper plant protection department/cell for identification of various insects, pests and diseases, their life cycle, critical stages of control, preventive measures in the form of Integrated Pest Management (IPM) is of highest priority to save the farm produce and economic losses faced by the farming community.

7. Measures against water logging, salinity and erosions

These are serious problems where the irrigation facilities are adequate and no proper natural slopes, open surface drainage or tile drainage facilities exist. Judicious use of irrigation water for field crops according to crop requirements, lining of distributaries, minors, and water courses play a major contribution to overcome such issues well in advance of losses.

8. Cooperative and Joint Farming

The land holdings in the most developing countries is less than subsistence holding which is not feasible for mechanized and commercialized farming. Moreover, the land holdings are scattered in different localities. In addition, fragmentation of land through inheritance is another factor. To overcome these problems educational drive is necessary to encourage consolidation of land holdings, cooperatives and joint farming.

9. Bringing uncultivated land under the plough through additional irrigation facilities and land reclamation

Efforts are needed to bring additional land under irrigation by saving, economizing the existing water resources, through improved On Farm Management Techniques, making water reservoirs and small dams for collection of rain water. Similarly, the land affected by water logging and salinity is to be brought under plough by adopting natural remedies like planting of suitable trees and grasses, and green manure and Gypsum application.

10. Improved Cultural Practices

By adopting these techniques like deep plough (chisel plough), Mould Board Plough, conservation of soil fertility by organic and Green manure, adoption/cultivation of restorative crops, the farm production can be increased manifold.

11. Dissemination of Agricultural Information and Technology Transfer to Farming community

The people involved in the farming business are living in remote areas of the country. Moreover, they are uneducated and cannot avail the mass media like Radio and T.V. The research findings cannot reach the far flung areas; therefore an effective Agricultural Extension System is important to disseminate the latest Agriculture Information and Technology to these people for adoption to get the expected / potential benefits.

12. Post harvest facilities, Storage, Procurement & Price Support and Marketing

In under-developed countries the channel system after the harvest of crops is not very much developed and the poor farmers face a-lot of difficulties in disposal of their surplus farm produce.

Storage at home, community and provincial level is a serious issue which needs priority. Packing, whether it is for cereals, or fruits and vegetables is not technically sound and safe. After packing a-lot of wastage occurs through transportation due to bad roads and over loaded trucks, pick ups etc. Similarly, there is lack of procurement agencies at Government and private levels. The price support offered for procurement either by Government or private agencies is normally less than the cost of production. At the end, the marketing system is so complicated that the producer has no say in the transaction and the commission agents exercise their own thumb rules of business which are not in favor of farming community. Cooperative farming and establishment of Farmers' Organizations (FOs) can give relief to farmers.

13. Availability of Inputs in time and at reasonable price

This is the most limiting factor and usually the supplying agencies take advantage by creating artificial shortage and price hike in costs of seed, fertilizers and pesticides. This compels the farmers to purchase the inputs at a high rate and therefore cost of production is increased.

The policy of Government legislation and its implementation is the solution. It is the responsibility of the Government and its agencies to plan in advance for making provisions of the necessary inputs at reasonable prices and to give relief to the producers.

14. Credit facilities at reasonable rates

The system of providing credit by banks is not encouraging because of high interest rates, procedural complications and delaying tactics. This system needs overhauling to facilitate the farm producers.

15. Role of Research Institutions

Over and above the role of research can not be over-sighted. First, the research is to be conducted based on demand and second, an effective linkage between research and farmers is to be maintained through a strong extension system to benefit the farmers. If this type of two-way communication is lacking the research findings will be of little use.

34. PROBLEM SOLVING

The clientele of extension organization i.e. mostly the farming families, face multifarious problems. They seek help of the extension agents to solve these problems in a befitting manner.

The only real way to help people facing problems is to show them how to solve these problems themselves. Extension workers have to do much work in this specific task. There are many problem solving techniques which can be used in identifying and examining local problems to find the best solutions.

THE PROCESS:

1. For solving problems through individual approach or group approach, one thing is common i.e. listing of the problem areas in the order of their priority.

2. After prioritizing problem areas, the next step is discussion to look for solutions.

EXAMPLE: Chilli Cultivation in the dry areas.

STAGE-I: Identification of limiting factors.

1. financial problems
2. shortage of water
3. unavailability of seeds
4. lack of credit facilities on time
5. weeds
6. pests and diseases
7. shortage of labor
8. farmer conservatism
9. low soil fertility
10. un-reliable rainfall
11. poor rural communication
12. cultivation calendars are not used
13. inefficient difficulties and
14. processing and storage problems.

STAGE-II: Prioritizing the problems

- Most important is financial problem

STAGE-III: Five possible solutions

1. provide government credit
2. provide credit on time
3. provide credit at low interest rates
4. provide credit on easy repayment terms
5. provide crop insurance where possible

Most favored solution:

Provide credit on time for planting so that:

1. The farmer can afford to grow the chilies.
   "Provide the farmer with money to buy good seed, fertilizer and pesticides; make sure that sufficient amount of money is readily available for him so that the farmer may manage his crop well and ensure a good yield, thus avoiding the to import chillies".

BASIC ELEMENTS OF PROBLEM SOLVING

1. What is the real problem? Break it up into units and try to arrange them in the order of importance.
2. Why is there a problem? Collect information about it. How long it has been a problem? What is its extent? What are its effects and how many people are affected? What is it costing?
3. What do we want to achieve? What is to be our aim? What are our objectives?
4. Are there several possible solutions? There is a shortage of water for rice production. Can we:

- Tap underground water resources.
- Establish new irrigation schemes.
- Modify management practices (more efficient use of available water or introduce short growing high yielding rice varieties).

We must have an acceptable solution to achieve. How many of these solutions are feasible? What are their drawbacks? Is there a combined solution?

Examine all ideas to see if they have any practiced application in solving the problem and try to choose the best one.

FIVE STEP PROBLEM SOLVER

1. Define the problem
2. Think of the causes
3. List possible solutions
4. Select the best solution
5. Plan the action.

35. INTERNATIONAL ORGANIZATIONS SUPPORTING AGRICULTURAL EXTENSION

INTRODUCTION

One of the biggest challenges facing the world today is feeding its ever increasing population. For a world that could not feed over 6 billion inhabitants today, the picture appears to be somewhat gloomy. In many developing countries high population growth has a dual effect on food balance. Field research to fill knowledge gaps has to continue and extension messages have to be formulated that are easy to understand by extension officers, as well as farmers. In this connection International Organizations supporting agricultural extension are enumerated below:-

1- International Crops Research Institute for Semi Arid tropics (ICRISAT), INDIA. ICRISAT conducts research on cereal crops, fruits and vegetables.

2- International Centre for Agriculture Research in dry areas (ICARDA), SYRIA. ICARDA conducts research on dry area crops sorghum, pulses etc.

3- International Livestock centre for Africa Addis Ababa, Ethopia. Activities include research on live-stock management.

4- International Laboratory for Research on animal diseases (ILRAD) Nairobi Kenya.

5- International Rice Research Institute (IRRI) Manila Philipines. Research on Rice crop.

6- International Institute of Tropical Agriculture (IITA) Ibadan Nigeria. Activities include research on tropical fruits.

7- International Fertilizers Development Centre (IFDC) Alabama, USA. Activities include research work on fertilizer use.

8- International Food Policy Research Institute (IFPRI) Washington DC.USA. Activities include research on food policy and food security issues.

9- Food and Agriculture Organization of United Nations (FAO).

Food and Agriculture Organization of the United Nations (FAO), is a specialized United Nations agency whose main goal is to afford freedom from hunger on a world scale. According to its constitution, the specific objectives are "raising levels of nutrition and standards of living and securing improvements in the efficiency of the production and distribution of all food and agricultural products".

The FAO originated at a conference called by President Franklin D. Roosevelt in May 1943. The 34 nations represented established the UN Interim .Commission on Food and Agriculture. In October 1945 the first session of the FAO was held in Quebec.

10- World Bank.

International Bank for Reconstruction and Development, also known as the World Bank, specialized United Nations agency established at the Bretton Woods

Conference in 1944. A related institution, the International Monetary Fund (IMF), was created at the same time. The chief objectives of the bank, as stated in the articles of agreement, are "to assist in the reconstruction and development of territories of members by facilitating the investment of capital for productive purposes [and] to promote private foreign investment by means of guarantees or participation in loans [and] to supplement private investment by providing, on suitable conditions, finance for productive purposes out of its own capital"

11- Commonwealth Agriculture Bureau United Kingdom. Commonwealth of Nations, international organization of sovereign states and dependencies sharing historic links with the United Kingdom and professing the same contemporary values. The term commonwealth has radical connotations in English constitutional history going back to the 17th century. It denoted the duty of all citizens to contribute to the welfare of the whole. With the outbreak of World War I in 1914 the usage was widely applied to the British Empire, as propagandized by Lionel Curtis in The British Commonwealth of Nations (1915). The idea of British nations devoted to a common weal was assumed to have a special relevance to the self-governing dominions of Canada, Newfoundland, Australia, New Zealand, and the Union of South Africa, and the United Kingdom; as white (or white-dominated) societies, the Commonwealth had a clear racial identity.

12- Centre International De Mejoramcento De Maizytrigo (CIMMYT), Mexico. (Research activities include Maite and wheat crops)

13- Centre International De la Papa (CIP) Lima Peru (Potato). Deals with potato production.

14- Asian Vegetables Research and Development Centre (AVRDC) TAIWAN.

Vegetables and Pulses Research.

15- African Food & Nutrition Research Organization (ORANA) DAKAR Senegal. Conducts research on food and nutrition.

16- International Soybean Research Institute IILNOIS, USA (INSRII). Research on soybean crop.

17- Crop Life c/o Plant Science Asia Limited 28F RASA TOWER 555 Phaholyothin Road, Chatuchak Bangkok, Thailand. Asia Plant Science Industry Journal

18- Crop Protection Association of China deals with the problems in plant Protection and safe use of pesticides.

19- International Service for the acquisition of Agriculture, Biotech Application (ISAAA) Bangkok. <www.lsaaa.org>.

20- APRTC (Asia Pacific Regional Technology Centre Bangkok. <www.aprtc.org.>. Informs about the preventive measures for control of insects and diseases.It offers online courses that focus on sustainable agriculture topics such as IPM and responsible use of pesticides.

21- International Marketing Consulting and training Company FROST& Sullivan Suite E-08-15, Block-E Plaa Mont, Kiaru 2 Jalan F/70C Kuala Lumpur.

22- International Seed Federation (ISF) www.World Seed.org. Research in seed technology.

23- International Fertilizers Associate (IFA) www.fertilizer.org. Deals with fertilizers.

24- TROPICAL Horticulture. www.tropical-seed.com. Research pertaining to tropical crops/ horticultural crops.

25- Crop Life International www.Croplife.org.

The global trade association of the plant science industry joined a partnership with Asia Pacific Regional Technology Center (APRTC) and the world view International Foundation that is entitled " Promoting capacity building for sustainable agriculture"

26- International Agri. Food Network. www.agrifood.net. Food research and nutrition.

27- National Agriculture Library, USDA.www.nalusda.gov. Agency for agriculture development which deals with agriculture.

28- World Trade Organization.www.wto.org. World Trade Organization, international body established to promote and enforce global free trade. The World Trade Organization (WTO) was founded in 1993 by the Final Act that concluded the Uruguay Round (1986-1994) of multilateral negotiations under the General Agreement on Tariffs and Trade (GATT) of 1947, which it supersedes, and exists to administer and police the 28 free-trade agreements in the Final Act, oversee world trade practices, and adjudicate trade disputes referred to it by member states.

29- Pest Management Resource Centre (PMRC). www.pestmanagement.co.UK. Conducts research on Pest Management.

30- US Global Resources. Green House technology.www.usgr.com. Research on green house technology.

31- Shell Agriculture.www.shell org. Deals with pesticides testing on crops and their judicious use.

32- International Group of National Associations of Agro-chemical Manufacturers, 79-Avenue Albert Lancaster B-N 80 Brussells. Belgium. (GIFAP).

The non commercial international umbrella organization of manufacturers of agrochemical took up the initiative to turn the safe use of crop protection products into a reality.

33- International Union for Conservation of Natural Resources IUCN. www.iucn.org. Study on Natural resource management.

34- United Nations Environment Programme (UNEP),

Established in 1972 by the United Nations (UN) General Assembly to promote international cooperation in environmental matters. Its tasks include constant surveillance of the environment in a program known as Earthwatch, analysis of trends, the collection and dissemination of information, the adoption of environmentally sound policies, and ensuring the compatibility of projects with the priorities of developing countries. UNEP has initiated projects concerned with the following problems: the ozone layer, climate, the transport and disposal of waste, the marine environment, water systems, soil degradation, deforestation, biodiversity, urban environment, sustainable development, energy conservation, human settlements and population issues, health, toxic chemicals, environmental law, and education. Activities are financed by the UN's general budget, by members' contributions, and by trust funds.

36. Organization for Economic Cooperation and Development (OECD),

An international organization comprising 30 countries participating in a permanent cooperation designed to coordinate their economic and social policies. The OECD makes available all information relevant to the formulation of national policy in every major field of economic activity. Its principal goals are: firstly, to promote employment, economic growth, and rising living standards in member countries, while maintaining stability; secondly, to contribute to sound economic expansion of both member and non-member nations in the process of development; and, thirdly, to further the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations. Policies are formulated and ideas are shared at meetings held throughout the year.

37. Food Legislation, laws

Designed to ensure the purity and quality of food stuffs. The first such general law was the Adulteration of Food and Drink Act 1860. This was designed to prevent the then widespread practice of adulteration of expensive foods with inexpensive substances—for example, the addition of poisonous lead acetate (called sugar of lead because of its sweet taste) to sugar, chalk to flour, and water to milk. The aim was twofold: to reassure consumers that the food sold was indeed as it appeared; and to protect the public against potentially dangerous chemicals in foods. These principles still underlie the laws governing the manufacture, distribution, and advertising of foods in most countries today: food offered for sale must be wholesome, fit for consumption, and of the nature and quality intended.

38. Potash and Phosphate Institute Norcross Georgia. -deals with better crops with plant food.

39.AgLe @ rn Agricultural education through the net goes for global reach. Uses modern information communication and education technologies to provide agricultural training personnel with the updated knowledge and skills they need in-order to be effective agents of change for sustainable agriculture.

Annexure

GROUP EXERCISES

I- OVERVIEW

1- Definition of Extension
2- History
3- Objectives.
4- Future / Expectation.
5- Objectives / Constraints.
6- Model / Approaches.
7- Communication – Field Visits / Interviews.
8- Adoption.

II- Improving Extension Programs

9- Planning – Project Preparation
10- Demonstration –Field Visit.
11- Improving Training Material, Overhead Project, Slide Projector, White board, Pamphlets, Charts.

III- Improving Extension

12- Problems.
13- Job Description.
14- Improving Organization - Organization Chart.
15- Training needs exercise.

IV- Role / Expectation

GROUP EXERCISES

Definition of Extension

The participants were divided into four groups. Each group was asked to define the agricultural extension according to their own understanding. The following definitions were given by each group as explained below:-

Group-A defined the agriculture extension as:

- Agricultural extension is to extend successful (improved) new and effective methods of agriculture to increase production and improve the living conditions of farming community.
- Extension education is to show the people educational and technical know how and help them in improving their present living conditions.

Group-B gave the following definition:

Extension is the learning process for farmers which prepares them to become self-sufficient and teaches them what they need to know about farming.

Group-C defined extension as:

- Extension is a bridge between Government and farmers.
- It uses new technology through demonstration plots and raises the awareness of farmers and raise their production by the use of improved facilities and the use of clear policies and determines the need of rural farmers through better marketing and raises the standard of living of rural people.

Group-D

- Extension is a knowledge which shows improved and proper methods of agriculture to farmers.
- Extension is the learning process which extends proper and new technology in the field (villages).

History of Agriculture in Afghanistan

- In 1958 the Agricultural Extension was established with the Director as administrative head of the Department.
- In 1959 the status of the Director was upgraded as Director General of Extension.
- In 1963 the nomenclature of Director was changed to the Presidency
- In 1966 the Extension and Research Wings were merged.

- In 1970 the Extension and Research were separated.
- In 1973 the General Presidency i.e. (Extension of Agriculture and Developments) was established.
- In 1977 in Afghanistan all the provinces had the post of Director Extension.
- In 1980 all the provinces had General Directorship and each District had an Extension Unit (Agriculture Officer). At present there are 348 Extension Units all over the country. During the war majority of these units were destroyed and have a loose structure which is not operational.

OBJECTIVES

The groups were given an exercise to outline the objectives of the extension organization. Each group gave their explanation about the objectives of extension which is reproduced as under:-

Group-A:

- Change the attitude and behavior of farmers and to make them understand new technology.
- Increase farm production.
- Helping farmers in their day to day business to improve their standard of living.
- Help the farmers to promote understanding and cooperation among themselves.
- Informing other national building departments/input supply agencies about the farmers' problems and with their assistance solving them.
- Expanding agricultural extension centres / offices to inform the people in a short period of time to help themselves and others.
- Making available improved seeds, fertilizers and other inputs e.g pesticides to the farming community in time.
- Educating farmers to plant beneficial plants (fruit plants).
- Educating youth and women folk and their technical knowhow and establishing organizations like youth clubs in villages.
- Developing coordination between the Government and farmers.
- Visiting the rural areas and making evaluation at the end of the year.
- Developing/exploring a good market for the agricultural produce.

Group-B

- Increasing farm production.
- Increasing irrigation efficiency.
- Improvement and marketing of agricultural production.
- Supply the best food to population.
- The best use of natural resources.

Group-C

- Extension is a bridge between Government and farmers
- It uses new technology by the use of Demonstration plots and raises their production by the use of improved facilities and their clear policies and determines the need of rural farmers to better marketing by raising the standard of living of rural people.

Group-D

- To increase agricultural production.
- Improving marketing and processing systems.
- Extension of latest and proper technology in the field.
- Adult education.
- Advising farmers about best utilization of natural resources.
- Conducting Farmers' need assessments and providing services and facilities to them.

CONSTRAINTS

Each group gave specific shortcomings / problems which hinder the development of agricultural extension. These are:

Group-A

- The technical know-how is nominal.
- Poor linkage between Research and Extension System.
- Training facilities (Human Resource Development) are not available
- Due to weak financial status /position of the state there is little mobility with the Agricultural Extension.
- Lack of appropriate agricultural machinery is also a serious issue.
- Organizational structure of Agricultural Extension is weak and ineffective.

Group-B

Emphasized on the following points:

- Training in the field of plant protection.
- Lay-out of demonstration plots.
- Provision of posters.
- Provision of Transistor, Radio, VCR for communication of agricultural information.
- Formation of youth club in the rural areas.
- Educational programs for community development.

- Strengthening of agricultural education in extension system.
- Training in poultry farming, silk worm rearing, honey bee farming, fish farming and dairy development.
- Adult education and rural sociology.
- Demonstration for change of attitude.
- Availability of production inputs.
- Adoption of technical know-how and improvement in the socio-economic condition of farmers.
- Farmers' technical know-how is to be upgraded.
- Farmers' situation analysis exercises are to be conducted.
- Friendly discussions with farmers.
- Training requirements and establishment of Training institutes.
- Adults Training centres in the community.
- Provision of technical staff and necessary equipments.

Group-C

- This group pointed out that the state and farmers' relationship is to be improved through the dissemination/transfer of technology to the farming community.
- The input agencies/services in the form of seed, fertilizer and others are to be facilitated by the Government to gain the confidence of the farming community.
- Marketing system of the agriculture produce is to be improved.
- Uplift of farmers community by utilizing their services for the improvement of their socio-economic condition.

Group-D

The main constraints according to this group were:

- Financial assistance/funding by the state / donors.
- Availability of chemical fertilizers and necessary know-how.
- Training in various disciplines to improve the skills of the extension workers.
- Priority of developmental work on need assessment basis.
- Improvement in the Agricultural system.
- Timely availability of necessary inputs.
- Provision of services on community basis for accelerated improvements.
- Expansion of Agricultural Extension system.
- Provision of adequate funding for the operations of agricultural activities.
- Improvement in the marketing system.
- The expansion of modern technology to the rural people in the country-side.

Agriculture Extension Models /Approaches

The groups were given the task to propose a suitable model which will work smoothly in the prevailing condition in Afghanistan. After thorough discussion, three groups favored the University based extension system whereas one group was of the view that traditional or old system is to be improved and followed.

Exercise on training needs/requirements.

The groups were given this exercise to pinpoint the different areas where the training was needed to improve the knowledge / skills of the extension worker as well as mentioning the duration and location. Each group specified some training courses which are needed for educating the farming community to improve their capability for enhancing farm production, additional source of income, employment opportunities for the farmers, women and rural youth and ultimately to improve the socio-economic conditions of the rural people in Afghanistan. The following are the specific recommendations of each group.

Group	*Training Fields /Subjects*		*Duration*	*Location*
A	1	**Vegetable Production**	**3 weeks**	**Kabul**
	2	**Orchards Management**	**4 weeks**	**Kabul**
	3	**Training for Extension Agents**	**3 weeks**	**Mazar-i-Sharif**
	4	**Honey Bee farming**	**4 weeks**	**Jalalabad**
	5	**Exchange visits**	**4 weeks**	**Pakistan**

Group	*Training Fields /Subjects*		*Duration*	*Location*
B	1	**Agriculture Economics**	**One week**	**Kabul**
	2	**Leadership and Rural Development**	**2 weeks**	**Jalalabad**
	3	**Pests and diseases of crops, vegetable and fruit plants.**	**2 weeks**	**Kabul**
	4	**Horticulture (Introduction and breeding)**	**2 weeks**	**Kabul**
	5	**Silk worm rearing and Fish farming**	**2 weeks**	**Nangrahar**
	6	**Agriculture Economic Development**	**2 weeks**	**Kabul**

	7	Industrial crops (Cash crops) Cotton, Sugarcane.	2 weeks	Kanduz

Group	*Training Fields /Subjects*		*Duration*	*Location*
C	1	Dairy Enterprise	4 weeks	Al-Beruny University
	2	Vegetable Production	4 weeks	-do-
	3	Fruits processing	4 weeks	-do-
	4	Poultry Farming	4 weeks	Peshawar
	5	Honey Bee rearing	4 weeks	Al-Beruny University.
	6	Use of Visual Aids in Agricultural Extension	4 weeks	Peshawar
	7	Fish Farming	4 weeks	Al-Beruny University
	8	Silk Worm rearing	4 weeks	Heart
	9	Farm Machinery and Management	4 weeks	Peshawar
	10	Integrated Pest Management	4 weeks	Al-Beruny University
	11	Turkey Production	4 weeks	Al-Beruny University

Group	*Training Fields /Subjects*		*Duration*	*Location*
D	1	Chemical control of pests	4 weeks	Kabul
	2	Vegetable Seed production	4 weeks	Jalalabad
	3	Nursery Establishment /Orchards management.	5 weeks	Peshawar.
	4	Cereal Crops production	3 weeks	Kandhar
	5	Post harvest Management and Marketing	4 weeks	Peshawar
	6	Honey Bee Farming	2 weeks	Wardak
	7	Fish farming	2 weeks	Jalalabad
	8	Ornamental plant production.	4 weeks	Peshawar
	9	Irrigation system (Water Management)	3 weeks	Mazar-i-Sharif
	10	Poultry Farming	4 weeks	Heart
	11	Seed Production Technology and Management.	4 weeks	Peshawar

All the participants in the groups were of the opinion that these trainings are to be given to the Agriculture Extension, Research and Teaching staff who are graduate in various disciplines who will further train the para-professional staff working in their jurisdictions.

EXERCISE ON PROJECT PLANNING.

The groups were given an exercise to prepare a project for implementation in different fields for development of the area. Each group gave a brief outline on the various projects which is reproduced as under:-

Group-A

1	Name of Community	Chahar -- Asia Unit
2	Name of Group	A
3	Date prepared	20.4.2004
4	Name of Worker	As in group-A
5	Project title	Training farmers for increase in production.
6	Period covered	2 months.
7	Project Objectives	Create awareness about new technology of production.
8	Plan of Activities	Farmers training, Method demonstration and transfer of technology.
9	Expected results	Awareness about new methods and technology is created among the farmers and agricultural production has increased.
10	Target date	20.6.2004
11	Persons responsible	Extension Department/District Agriculture Officer.
12	Resources needed	Manual labor, inputs in the form of seed, fertilizer, finances & machinery.
13	Monitoring and Evaluation	Monitoring by the Implementing Agency and Evaluation by the organization / External Agency for example Donor or state.

Group-B

1	Name of Community	Amar Khil (Jalalabad)
2	Name of group	B
3	Date prepared	12.5.2004
4	Name of Worker	As in Group-B
5	Project title	Establishment of Poultry Farm.
6	Period covered	One year.
7	Project Objectives	• To increase meat and eggs production, • To engage women folk. • To create additional source of income. • To use surplus grain for example maize, wheat, beans etc.
8	Plan of Activities	• Construction of sheds, • Purchase of vaccine. • Purchase of ration. • Purchase of chicks and others materials
9	Expected results.	Supply of fresh eggs and meat to the local consumers in Jalalabad city at reasonable prices. Job opportunities for small scale farmers. Improvement of income of these groups.
10	Target date	13.5.2005
11	Persons responsible	Livestock Department Poultry production organization.
12	Resources needed	Finances, Technical personnel, sheds, ration, one day old chicks, mobility and skilled labor.
13	Monitoring and Evaluation	By the State agency / donor on monthly basis and after six months in project period.

GROUP-C

1	Name of Community	Deh dana
2	Name of group	C
3	Date prepared	12.5.2004
4	Name of Worker	As in Group-C
5	Project title	Establishment of Agriculture Cooperative Society.
6	Period covered	One year
7	Project Objectives	• To organize people to solve native / local problems. • To get necessary inputs in time at reasonable prices. • To improve the farm yield. • To improve the socio-economic conditions of the community.
8	Plan of Activities	• To organize farmers. • Hold meetings. • Select functionaries • To arrange for the finances.
9	Expected results.	• To facilitate the farmers to get the necessary inputs in time at reasonable prices. • To enhance the farm production. • To create the atmosphere for collective working/participatory approach. • To develop local leadership.
10	Target date	May,2005
11	Persons responsible	Cooperative Department at the state level and local cooperative organization. Motivators / Social Organizers.
12	Resources needed	• Enrollment of members. • Selection of functionaries. • Provision of funds.
13	Monitoring and Evaluation	By the local Cooperative Department and funding agency.

Group-D

1	Name of Community	Orchards growers of Kabul
2	Name of group	D
3	Date prepared	1.10.2004
4	Name of Worker	As in Group-D
5	Project title	Nursery Establishment
6	Period covered	2 years 1.11.2004 to 1.3.2006
7	Project Objectives	• Increasing apples orchards. • Training farmers how to establish nursery. • Re-establishment of drought effected orchards. • To find business for the farmers.
8	Plan of Activities	• Acquisition / purchase of land or on lease. • Land preparation. • Purchase of inputs like seed, fertilizer. Grafting and pruning tools • Engagement of skilled labor. • Holding of Field days and method demonstrations.
9	Expected results.	• The establishment of 500 new orchards. • Training of 1000 farmers in the orchards management. • Renovation of 250 drought affected orchards in the area.
10	Target date	1.11.2004 to 1.3.2006
11	Persons responsible	State Department of Agriculture / Donor agencies and local Agriculture organizations.
12	Resources needed	• Land • Finances • Machinery and tools. • Bud wood. • Skilled labor
13	Monitoring and Evaluation	State Department and Donor Agencies.

EXERCISE FOR MASS COMMUNICATION

Visit was arranged for the participants to the following local mass media agencies.

- Government Printing Press Wazir Akbar Khan, Kabul
- Radio Station Wazir Akbar Khan, Kabul.
- Television Station Wazir Akbar Khan, Kabul.

Government Printing Press

In the press the participants were given a briefing by the local in-charge about the various stages from which the printing papers pass through from rough drafting, correction, tuning, printing and finally binding. During the visit, the participants also saw the various formats under preparation, for example, the national registration process for enlistment of voters, the agriculture commodities export format and other relating to rules and regulations, byelaws etc of the different organizations of the state. About 50 women workers were employed in different section of the press.

Radio Station

After visiting Government press, the group went to the Radio Station building, Kabul. In the station the trainees were taken to the various sections and were given necessary briefing by the incharge regarding the various functions performed by them and finally to the broadcasting room from where the final message is broadcast.

Participants asked questions about the various programs and showed interest in the programs pertaining to agriculture. The incharge told that agricultural programs were being broadcast at regular intervals for education and awareness of the farming community in Afghanistan. The principal instructor explained various principles of broadcasting, agricultural talks and usage of microphones and recording equipment.

Television Station

At the end, the group was taken to Television Station where the Incharge Engineer briefed the participants about the procedure and technical features of the recording, production and finally the telecasting stage. The participants asked various questions about the programs and coverage. The Engineer told that the further expansion and improvement for covering the remote areas are under the final stages where all the programs will be watched by the people living in the remote areas of the country.

Exercise Field Visits to Kapisa Province.(Demonstration / Field trials)

The group proceeded to the Kapisa Province via Parwan Province. The field demonstration trial of wheat crop was observed. The Incharge of the extension organization (Deputy Director) gave a briefing about the wheat trials. In all, fifteen varieties were sown which were in earing stage. The purpose of trials was to find out resistant varieties to nematode and rust. The germ plasm was imported from France and Pakistan. The crop condition was good and there was no sign of any attack at the time of visit by the trainees.

It was informed that 15000 hectares of wheat area was sown in the province and the average yield was 3500 Kgs per ha which was about 14 maunds per acre. Availability of water was no problem. A lot of canal irrigation water was available because of three rivers passing through the area. Moreover, the ground water was available at the depth of 13 to 15 meters i.e. 40-45 feet. Soil of the area was good for a number of agricultural crops. Mainly two crops were sown in the area. The major crop for rabi season was wheat and for kharif, maize, paddy and vegetables. The other crops were fruits mainly grapes followed by Mulberry. Main activities of the people were animal rearing and agriculture.

Visit to Textile Mill at Al-Beruny

Later-on the group visited a Textile Mill at Al-Beruny which was not functional. It was owned by the state. The management / employees were engaged in manufacturing steel doors and windows temporarily. The mill owned an area of 600 acres and about 46 acres were under the buildings structures. The main problems faced by the management were non-availability of electricity and no spare parts for the running or operating the mill. It was told that the mill was an exemplary textile mill in whole of Afghanistan before war and Al-Beruni was a main cotton producing area.

Exercise Field Visit (Research Stations)

Group visited the following Research Stations around Kabul

- Kargha Horticultural Research Station
- Dar-ul Amaan Cereal Crops Research Station.
- Badam Bagh Horticultural Research Station

Kargha Horticulture Research Station

The area of the farm was twelve hectares. Incharge of the farm was Mr. Saboor Khan. Main activity at the farm was the introduction of different varieties of grapes suited to the agro-climatic conditions of Afghanistan. Presently, 60 varieties were sown at the farm. The farm was put into operation for the last two years, therefore, no specific variety has been yet selected for release and general cultivation by the farmers. The previous stock available at the farm has been destroyed because of the war and unstable conditions in the country. Hussaini variety of grape which is bigger in size and resistant to cold is a promising variety.

In addition, some vegetable trials were also conducted at the station. Other trials of tomato, potato and cucumber imported from Italy were also laid out on the farm. The main purpose of the trial was to find out the suitability and yield performance compared with the local varieties. Wheat trials on small scale were also sown to see the yield performance.

Dar-ul Amaan Cereal Research Station

Area of the farm is 26 hectares. The main focus was on the introduction and promotion of cereal crops i.e. wheat and maize. 1200 wheat varieties were introduced by the CYMMIT with the assistance of the Food and Agriculture Organization (FAO). 15

varieties were introduced from France and three of them were promising. Four varieties from Pakistan were introduced. Maize was mainly introduced from CYMMIYT. During the last season 15 hundred tones of wheat seed were distributed.

Besides the Cereals, fruit and vegetable trials were also in hand on a small scale. Similarly, Peach, Apricot, Plum were also tried and for this purpose a nursery was established but the scion was not available. Water shortage was a problem in the rural areas of Afghanistan as told by the incharge. Director Mr. Abdul Qadus.

Badam Bagh Horticulture Research Station

The area of the farm is 70 hectares. The station was established in 1959. The station was mainly working on apple, almond and peach fruit varieties. Germany and Italy are supporting the activities. Dwarf Apple sucker (1 to 26) were imported from East Mailing Research Station UK. Durable Root stock was imported from Italy which is used as a Root stock for Peach, Plum and Apricot. It is resistant to insect pests and dry spell. Pilot fruit nursery farms are available for each fruit according to suitable climatic conditions in each province of Afghanistan.

Availability of Irrigation water is a problem at the farm and budget provision is also a constraint. The Non-Governmental Organizations are working on their own programs and there is no proper coordination of NGOs with other organizations.

ROLES/EXPECTATIONS

As a final exercise, the trainees were asked to furnish their views about the role to be played by them in their job assignments after getting this training and express their expectations from the course.

The responses were encouraging. They assured that they would utilize the training skills in training their staff and colleagues engaged in extension work. Moreover, they have expectations to continue such training programs by involving local trainers as well as other foreign trainers. They wanted repetition of this training at other places of Afghanistan.

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