



**Credits: 7**

**Learning hours: 70hrs**

**Sector: Agriculture**

**Sub-sector: Forestry**

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### **Purpose statement**

This module describes the skills and knowledge required to apply forest extension. This skills in forest extension is of great importance for the extending the forest innovation in rural areas through the forest technician.

The module will allow the learner to:

- Analyze problem in working area
- Develop technical package of forest extension;
- Prepare tools and materials to use in forest extension
- Conduct forest extension.

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## Learning Unit 1 – Analyse a problem

In general, a problem occurs when there is a difference between “what is” and what should be”, between the ideal and actual situation.

For analysing a problem starts by problem identification, Problem analysis and then problem solving of identified problems whereas for solving a problem the first step is to define or identify the problem even it is the most difficult and the most important of all steps.

### LO 1.1 – Introduce oneself to the local leaders


#### Topic 1: Self presentation to the local leaders and community

- ✓ Identification: The extensionist must greet firstly local leaders and then says to the local leaders and community his/her identification which include the following elements:

-  Names

-  Address

-  Contact

-  Age

-  Status

- ✓ Position: He/she say what he/she does or his/her carrier.
- ✓ Institution: The extensionist says the institution is coming from.
- ✓ Objectives: The extensionist says objectives of extension activities they have to achieve and also outcomes.

#### Topic 2: Identification of Extension area (field recognition)

- ✓ Community behaviours: This refers to how the corporate or the society behave or conduct towards an innovation or new technology.
- ✓ Socio-economic of community: Economic environment affects extension in many ways: Country's stage of economic development and level of government investment in public extension sector.

This is influenced by absence or presence of structural adjustment programme, the degree of economic dependence on agriculture and the proportion of population economically active in agriculture.

The percentage of farmers 'resource influences the type of technology to be transferred.

Social builds community-based responses that address underlying social problems on an individual, institutional, community, national and/or international level. Social can change attitudes, behaviours, laws, policies and institutions to better reflect values of inclusion, fairness, diversity and opportunity. Social involves a collective action of individuals who are closest to the social problems to develop solutions that address social issues.

- ✓ Religion and values: People's adhesion/belonging in religion/belief in environment protection association such as ecologist or environment activist, etc.

Examples:

- + The Muslims cannot be sensitized on pig farming.
- + You cannot sensitize the Adventists on Saturday
- + Some Protestants cannot wish to be helped in alcoholic drinks entrepreneurial.
- + Other people belonging in agriculture cooperatives (rice, coffee, tea, beans) associations. As the group can be reached together and group members can sensitize each other.
- ✓ Values are guiding principles which dictate behaviour of farmers and can help people understand the difference between right and wrong. Belief is a mental representation treated in various academic disciplines especially philosophy and psychology of a sentient being's attitude towards the likelihood or truth of something.

The farmers have the values and taboos that they are observing, when sown in the transgression of these values, the extension officer will no longer have any influence on the farmers he is supposed to guide. On other hand, the culture traits/ aspects will show extensionist officer where to put the focus and how to organize the sensitization.

- ✓ Collection of information on administrative area: Extension in many countries has its roots in assisting farmers in changing production, agriculture practices. The majority of extension systems are based on the countries, ministry of agriculture or department of agriculture.

Extension administrators or leadership members have questions on what is the best extension administrative model and what are administrative practices which make a successful extension system.

Administrative system in many agriculture sector may have a negative impact on the extension system in many ways.

Geography sets the barriers/ limits such as climatic variability and distance. It is a big problem to adopt technologies or innovations across different latitudes and varying ecological conditions.

For example: In Rwanda, we have different Provinces, Districts, Sectors and Cells that can have different ecological conditions and latitudes that is to say the type of innovation used can be different according to the district or sector.

- ✓ Collection of information related to the organization chart of local leaders

It would have the following organization structure:

- ✚ **1<sup>ST</sup> LEVEL:** At the ground level basic extension workers, polyvalent would be responsible for apprenticeship in production or productivity techniques. Some of this function is taken over by the village organizations or cooperatives.

Farmer organizations can be grouped into two types:

- ❖ The community-based and resource orientated organizations: This type could be a village level cooperative or association dealing with inputs needed by the members, the resource owners, to enhance the productivity of their business based on land, water or animals. These organizations are generally small, have well-defined geographical areas and are predominantly concerned about inputs. However, the client group is highly diversified in terms of crops and commodities.
- ❖ Commodity-based and market oriented organizations: These organizations specialize in a single commodity and opt for value-added products which have expanded markets. They are designated as output-dominated organizations. Not specific to any single community, they can obtain members from among the regional growers of that commodity who are interested in investing some share capital to acquire the most recent processing technology and professional manpower.

- ✚ **2<sup>nd</sup> LEVEL:** Sector

At the Sector level, Sector heads would be responsible for:

- ❖ Economic and social
- ❖ Apprenticeship to farmers
- ❖ Promotion of village organizations
- ❖ Training of farmers in management
- ❖ Training of basic extension workers
- ❖ Apprenticeship to farmers, of more complex production and productivity techniques.

### **3<sup>rd</sup> Level: District**

At the District level, the District head would be assisted by specialized agricultural advisory, divisions or specific section heads for example:

A cooperation and extension division that could include various sections such:

- ❖ Research and development section with the following objectives:
  - The development and coordination of short and medium term research programs
  - Conducting trials in a semi-controlled environment
  - Conducting on-farms trials
- ❖ Training and extension section with the following objectives:
  - Training of monitoring staff
  - Organization and coordination of training and extension
  - Training farmers on extension topics
- ❖ Cooperation section with the following objectives:
  - Development of outlines for promoting self-assistance
  - Training of monitoring staff
  - Organization and implementation of sensitization and training of target groups
  - Assistance to groups in obtaining and managing credits
- ❖ A division of production and marketing resources in charge of the management and implementation of production resources
- ❖ An administration and finance division
- ❖ A monitoring and evaluation division in charge of activity monitoring and evaluation surveys
- ❖ A planning and programming division

### **4<sup>th</sup> Level: Provincial technique and administrative unit**

It includes an engineering unit responsible for supporting more systematically the efforts of the other levels in organization and training matters.

### **5<sup>th</sup> Level: A coordination unit at National level (within MINAGRI).**

### Topic 3: Communication strategies and tools

- ✓ Oral presentation: By using verbal words for conveying a message to the farmers in extension area.  
You may use short sentence understandable by everyone.
  - ✚ Ideas adjustment: Identify the main ideas and summarize information.
  - ✚ Behaviour: When you transfer a message before the public, you must be polite, friendly and respectful.
- ✓ Letter transmission: By using written letters transferred to the farmers in extension area.
- ✓ Announcement
- ✓ Phone calls (calls or Sms)
- ✓ Appointment
- ✓ E-mail: Are a commonly used way of sending speedy written communication in extension activities and are used for internal and external correspondence. They are written for a variety of reasons, they are cheap and accessible, they allow people to respond to each other quickly and E-mails can be sent to multiple people at once.

### LO 1.2 – Appraise the working area

#### Topic 1 : Map interpretation

The extensionist for assigning the working area (target area) must know how to read and interpret the map. The following are elements compose a map.

- ✓ Legend: Key to symbols on a map or on a chart and key to the colour codes on map or chart.
- ✓ Scale: A line or bar associated with a drawing used to indicate measurement when the image has been magnified or reduced. It shows the relationship between the distance of that map and distance observed on the ground.
- ✓ Geographical coordinates: Is a coordinate system that enables every location on the earth to be specified by a set of number or letters or symbols. Coordinates are often chosen such that one of the numbers represent vertical position and two or three number represent horizontal position. Those coordinates are: Latitude, longitude and Altitude.
- ✓ Natural infrastructures (forests): Especially national parks forests those include natural forests, reserved forests found in the extension area.
- ✓ Artificial infrastructures (Roads and forests): include infrastructures that are made by human beings found in the extension area

- ✓ Working area boundaries: indicates the limitations of working area all sides of a map.
- ✓ Title : indicate what about the given map
- ✓ Compass direction: Indicate the North direction of the map

## Topic 2: Identification of methods of documentation

- ✓ Research on internet: Documentation made on different websites, on internet by using electronic machines.
- ✓ Books: A collection of sheet of papers bound together containing printed or written material, pictures of something or place. It is commonly referred to as a notebook. This is a document or record containing first-hand information or original data on a topic.
- ✓ Reports: Relates to the writing information, events, piece describing or an account by certain events given or presented to someone and done by someone or groups.
- ✓ Archives: A place for storing earlier and often historical material. An archive usually contains documents (letters, records, newspapers or other types for media kept for historical interest.
- ✓ Bulletin: A short report or printed publication especially one released through an official channels to be broadcast or publicized.

## LO 1.3 – Conduct the survey

### Topic 1: The required information for conducting the survey

- ✓ Definition: Survey is a way of getting or gathering information concerning the target group and target area by using the sampling techniques.
- ✓ A survey is a technique of searching or investigating a person in order to gather information of a given extension area.

It is necessary to know which kind of information is required and then decide on the procedures to be used for collecting them.

- ✓ Population size: refers to complete group of objects or elements relevant to the research.
- ✓ Sample size: The size of member representative of the population. The sample must be followed by an explanation of its delimitation.

A sample can be defined as a representative part or a single item from a large whole or group especially when presented for inspection or shown as evidence of quality.

It can also be defined as a finite part of a statistical population whose properties are studied to gain information about the whole.



- ✓ Education level: Refers to the level of description of the knowledge of an agent that is independent of the agent's internal symbol level representation. Knowledge can be attributed to agents by observing their actions.

An agent knows something if it acts as if it had the information and is acting rationally to achieve its goals.

The actions of agents including knowledge base serve and knowledge based systems can be seen through a tell and task functional interface where a client interacts with an agent by making logical assertions (tell) and posing queries (ask).

There are four levels of depth of knowledge:



- ✚ **Level 1:** Recall of information: Ask farmers to recall facts, terms, concepts, trends, generalizations and theories or to recognize or identifying specific information contain in graphics. This level generally requires farmers to identify, list or define. The items at this level ask farmers to recall who, what, when and where.
- ✚ **Level 2:** Basic reasoning: It includes the engagement of some mental processing beyond recalling or reproducing a response.  
It describes or explains would requires farmers to go beyond a description or explanation of recalled information to describe or explain a result or how or why.
- ✚ **Level 3:** Complex reasoning: It requires reasoning; using evidence and a higher of thinking than the previous two levels. Farmers would go beyond explaining or describing how and why to justifying the how and why through application and evidence.
- ✚ **Level 4:** Extended reasoning: It requires the complex reasoning of level 3 with the additional of planning, investigating or developing that will most likely require an extended period of time.

- ✓ Age group
- ✓ Gender
- ✓ Marital status
- ✓ Occupation
- ✓ Community livelihood

## Topic 2: Types of information (data)

- ✓ **Data:** Is a set of values of qualitative or quantitative variables or individual piece of information. Data is measured, collected, reported and analyzed where as it can be visualized using figures or images.
- ✓ Data refers to the fact that some existing information or knowledge is represented or coded in some form for better processing or better usage.

### Types of data:

-  **Qualitative data:** Are data extremely varied in nature. It includes virtually any information that can be captured that is no numerical in nature. Qualitative data can be arranged into categories that are not numerical. These categories can be physical traits, gender, colour or anything that does not have a number associated to it.
-  **Quantitative data:** Are data (metric or continuous) is often referred to as the measurable data. This type of data allows statisticians to perform various arithmetic operations such as additions and multiplication to find parameters of a population like mean or variance. The observations represent counts or measurements and thus all values are numerical.

## Topic 3: Determination of source of information

- ✓ **Primary data:** Are data collected by the researcher themselves for a specific purpose and are collected by using qualitative and quantitative methods such as questionnaire, interviews, observation, case study and scientific experiments.

Primary source of information (data) which uses survey, experiment and direct observation. Examples: interviews, diaries, letters, journals, original handwritten manuscripts, newspaper, magazines and Government documents or reports.

- ✓ **Secondary data:** Are data that already exists and collected by someone else for some purpose different to the investigator (but being utilized by the investigator).

Secondary source of information (data) which uses diverse source of documents or electronically stored information, census and market study. Examples: biographies, historical films, music and art, textbooks, review articles and events from past.

## ✓ Classification of source of data

The sources of information can be classified as:

- ✚ Oral information: Those are vocal source of information like interviews and life histories.
- ✚ Written information: Those are paper-based source of information such as: books, journals, research, reports, conference papers, markets report, annual reports, internal records of organizations, newspapers and magazines.
- ✚ Soft/ICT information: Those are electronic sources of information which can be on-line databases, Internet, web information, videos and broadcasts.

## Topic 4: Identification of questionnaire types

- ✓ Definition: A questionnaire is a research instrument (tool) consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Most questionnaires prepared contain both types of questions and this is advisable. Those questions are appropriate in different contexts and provide different kinds of information.
- ✓ The types of questionnaire contain:
  - ✚ Open questions,
  - ✚ Closed questions and
  - ✚ Combined questions.

## Topic 5: Identification of questionnaire contains open questions

- ✓ Open questions: The questions that allow the respondent to answer in any way they wish. Those questions allow people to express what they think in their own words. Open ended questions are used when the issue is complex. An open question is likely to receive a long answer.
- ✓ Characteristics of open questions:
  - ✚ They ask respondent to think and reflect
  - ✚ They will give you opinions and feelings
  - ✚ They hand control of conversation of the respondent.
  - ✚ Open questions begin with words such as:
    - ❖ What
    - ❖ Why
    - ❖ How
    - ❖ Describe
    - ❖ Tell me

✓ **Advantages and disadvantages of open questions**

Advantages	Disadvantages
The respondent can answer in any way he/she wishes (Flexibility)	They require more thought and time on the part of respondent and analyst
They may be better means of eliciting true opinions	Reduce the number of questions that the questionnaire can holistically ask
Identifying how strongly attitudes are held or not	It is more difficult to poor opinion across the sample when use open questionnaire
	Respondent may answer in unhelpful ways

Table 1: Indicates advantages and disadvantages of questions

**Topic 6: Identification of questionnaire contains closed questions**

- ✓ Closed questions: Are questions in which all possible answers are identified and the respondent are asked to choose one of the answers.
- ✓ A closed question can be answered with either a single word or a short phrase and can be answered by either yes or no. The questionnaire is not well designated but illustrates clearly the nature of closed questions.

For example: How old are you? And where do you live?

- ✓ Characteristics of closed questions:
  - ✚ They give you facts
  - ✚ They are easy to answer
  - ✚ They are quick to answer
  - ✚ They keep control of the conversation with the questioner
- ✓ **Advantages and disadvantages of closed questions**

Advantages	Disadvantages
Questions are good for knowledge testing and for obtaining data on attitudes and opinions	Closed questions are appropriate only when the set of possible answers are known and clear
Oblige the respondent to answer particular questions providing a high level of control to questioner	If poorly designated they may be misleading and frustrate respondents
They involve minimal effort on the part of the respondent	

They save time and is less time consuming for respondents to complete and this allow questionnaire to ask more questions	
They avoid problems of interpreting respondents' hand writing	
They can provide better information than open questions particularly where respondents are not highly motivated	

Table 2: Indicate advantages and disadvantages of closed questions

## Topic 7: Identification of questionnaire contains combined questions

- ✓ Combined questions: The questions on the questionnaire are in combination, they may be open as well as closed questions.

Eg: Does avocado fruit possess importance in human body? Justify your opinion.

- ✓ Advantages of combined questions
  - It shows different knowledge of a person
  - It gives respondents to give answers in detail ways
- ✓ Disadvantages of combined questions
  - It requires more thought and time
  - It requires deep analyzing of ideas

## LO 1.4 – Data collection techniques

### Topic 1: Identification of data collection techniques

- ✓ Self-enumeration
- ✓ Interview assisted: Is a conversation between two or more people where questions are asked by the interviewer and answers are given by interviewee. This word refers to one-on-one conversation between an interviewer and interviewee.

Interviews almost always involve spoken conversation between two or more parties although in some instance a conversation can happen between two persons who type questions and answers back and forth.

Interviews usually take place face to face and in person, although modern communication technologies such as internet, video, conference software and telephone interviews can happen without visual contact.

Typically, the interviewer has some way of recording the information that is gleaned from the interviewee often by writing with a pencil, and paper, sometimes transcribing with a video or audio recorder depending on the context and extent of information and the length of the interview.

- ✓ Observation: Is a systematic data collection approach. Researchers use all of their senses to examine people in natural setting or naturally occurring situations. This aspect of what is involved in observation is crucial to any efforts to use it as a method of research.

### **Observation of a field setting involves:**







- ✚ Prolonged engagement in a setting or social situation;
- ✚ Clearly expressed, self-conscious notations of how observing is done;
- ✚ Methodological and tactical improvisation in order to develop a full understanding of the setting of interest;
- ✚ Imparting attention in ways that is in some sense standardized
- ✚ Recording one's observations
- ✚ Human beings spend much of their working life observing the world in which they live
- ✚ Immediately, we should note that observation does not just involve vision. It includes all senses, although in practice sight and sound will be those which predominate in most research and crucially, it also involves the interpretation of the sense data. No observer simply absorbs the visual or aural data that impinges on her sense organs: Psychology has taught us that perception involves information processing so that the pieces of data can be organised into something recognisable.

This means that observation is more than just recording of data from the environment. When we observe, we are active not passive collectors of data like a tape recorder or video camera. Our brains are engaged as well as our eyes and ears organizing data so we can make sense of them.

### **Perception is that part of all human observation.**

- ✓ Documentary research techniques: by reading of documents: Although reading is more to do with literature review, it is also an instrument for studying public documents such as newspaper, minutes of meetings, and private documents such as letters, biographies and diaries to enable the researcher obtain the language and words of informants who may not alive at the time of the research. The limitation or difficult in this approach is that the documents may be protected and researchers may not have access to them either because they are national security documents or confidential documents.

By using web sites: Some information are stored in the electronic softwares, when you need any information you can login them and search what you need.

- ✓ **Sampling:** Is a procedure for selecting sample members from a population. In extension, is used as a shortcut method for investing a whole population. In reality, there is simply not enough time, energy, money, labour, and equipment, access to suitable sites to measure every single item or site within the population or whole sampling. Therefore appropriate sampling strategy is adopted to obtain a representative and statistically valid sample of the whole. Sampling can be classified into probability and non-probability sampling.
- ✓ **Data record techniques :** Data collected by extension worker on the field is recorded by using different ways such as:
  -  Tables
  -  Figures
  -  Writing
- ✓ **Data processing operations:**
  -  **Editing:** Data writing by hand and computer
  -  **Tabulation:** During data processing or analyzing data by using softwares, the processed data are presented, arranged and displayed in tables for easy understandable and readable.
  -  **Compilation:** To enter or update data into a computer system database often from paper documents using a keyboard, optical scanner or data recorder. A process of entering data and processing data into a computerized database or spreadsheet is known as compilation. Data entry and processing can be performed by an individual typing at a keyboard or by a machine entering data electronically.

## Topic 2: Types of interview

**There are many types of interviews which include:**


- ✓ Structured interviews is also called standardized interview. The same questions are asked of all respondents. It uses a detailed interview guide. Consequently, there is a common format which makes it easier to analyze code and compare data. The strength of it is that the researcher has control over the topics and the format of the interview.
- ✓ Semi-structured interviews: Are no structured interview and are frequently used in qualitative analysis. The researcher has a list of key themes, issues and questions to be


covered. The order of questions can be changed depending on the direction of the interview. An interview guide is also used but additional questions can be asked and some may be questions that have not been anticipated in the beginning of the interview.


- ✓ **Unstructured interviews:** This type of interview is no-directive and is a flexible method. It is more casual than the fore mentioned interviews. There is no need to follow a detailed interview guide. Each interview is different. Interviewees are encouraged to speak openly, frankly and give as much detail as possible. The interviewer asks questions that respondents would be able to express their opinions, knowledge and share their experience.
- ✓ **Non-directive interview:** In non-directive interviews there are no preset topic to pursue. Questions are usually no pre-planned. The interviewer listens and does not take the lead. The interviewer follows what the interviewee has to say. The interviewee leads the conversation and is allowed to talk freely about the subject.


### Topic 3: Classification of probability sampling

- ✓ **Probability sampling:** a sample has a known probability of being selected. Each member of the population has a known non zero probability of being selected. It includes random sampling, systematic sampling, stratified sampling and cluster sampling. Its advantage is that the sampling error is calculated.

-  **Random sampling:** This is the purest form of probability sampling. Each member of the population has an equal and known chance of being selected. When there are very large populations, it is often difficult or impossible to identify every member of the population, so the pool of available subjects becomes biased.

-  **Systematic sampling:** Is often used instead of random sampling. After the required sample size has been calculated, every member record is selected from a list of population members. Its only advantage over the random sampling technique is simplicity.

-  **Stratified sampling:** With stratified sampling the population is divided into groups (strata or stratum), based on some characteristics, then within each group a probability sample (often a simple random sample) is selected. It is often used when one or more of the stratum in the population has a low incidence relative to the other stratum. A stratum is a subset of the population that share at least one common characteristic.

-  **Cluster sampling:** Cluster sampling refers to a sampling method that has the following properties:



The population is divided into N groups called clusters.

The researcher randomly chooses n clusters to include in the sample.

The number of observation within each cluster  $M_i$  is known and  $M = M_1 + M_2 + M_3 + \dots + M_{N-1} + M_N$

Each element of the population can be assigned to one, and only one cluster.

- ❖ This tutorial covers two types of cluster sampling methods:
  - One-stage sampling: All of the elements within selected clusters are included in the sample.
  - b) Two-stage sampling: A subset of elements within selected clusters is randomly selected for inclusion in the sample.
- ❖ Advantage of cluster sampling: Its cost per sample point is less for cluster sampling than for other sampling methods.
- ❖ Disadvantage: It provides less precision than either simple random sampling or stratified sampling.

#### Topic 4: Classification of non-probability sampling

- ✓ Non probability sampling: sample does not have known probability of being selected as in convenience or voluntary response survey. Members are selected from the population in some non-random manner.

It includes convenience sampling, judgement sampling, quota sampling and snow sampling. Its advantage is that the degree to which the sample differs from the population remains unknown.

- 🚦 Convenience sampling: Is used where researcher is interested in getting inexpensive approximation of the truth. As the name implies, the sample is selected because they are convenient. It is used for preliminary research in exploratory research.
- 🚦 Judgement sampling: Is a common non probability method. The researcher selects the sample based on the judgement. When using this method, researcher must be confident that the chosen sample is truly representative of the entire population.
- 🚦 Quota sampling: Is equivalent of stratified sampling. The researcher first identifies the stratum and their proportions as they are represented in the population. This differs from stratified sampling where the strata are filled by random sampling.
- 🚦 Snowball sampling: Is special method used when the desired sample characteristics is rare. It may be extremely difficult or cost prohibitive to locate respondents in these situations. Snowball sampling relies on referrals from initial subjects to generate additional subjects.

## LO 1.4 – Prioritize the problems

### Topic 1: Problems identification

- ✓ **The problem identification** (Farmers' needs assessment) is actually seeing the problem before trying to solve it. It is the first strategy in solving a problem. It is also involves diagnosis of the situations so that focus on the real problem and not on its symptoms.

During identifying the problem, first we can accept that there is a problem, identify it, then observe and reflect what is going on. Collect information that relate and begin working on solutions.

Some questions we should ask:

- + What is the problem?
- + What are the causes of problem?
- + Can I solve it?

A clearly specified list of problems is the most suitable basis for identifying potential solutions.

Problems can be identified both now and in the future as evidence that objectives are not being achieved.

Another way of thinking about problem definition would be: the goal or ideal state defines how much of a problem exists or even whether or not there is a problem.

One of the easiest ways of specifying problems is by reference to a set of objectives. This enables the question how do we know we have got a problem? To be answered more easily.

- ✓ **The process of identification problem**

- + People: Are the right people working on the tasks. Do the people have the necessary knowledge and skill to address the problem?
- + Outcomes: Is there a clear understanding of desired outcome. Is a current process being improved or are a new process being created. How is the desired different from what exists currently.
- + Context: What has been tried before to address this issue, does it link to the strategic priorities; are there necessary resources (time, money, people)
- + Method: How familiar are the people with the problem solving tools/ methods that will be used.

## Topic 2: Problems prioritization process

- ✓ **Problems prioritization** is a way of taking the priorities of problems and taking the highest ranking by :
  - ✚ Discussing the core problems and reach a common understanding
  - ✚ Identifying the factors causing the problems
  - ✚ Come up with basic solution
- ✓ **The processes for problems prioritization are:**
  - ✚ Problems listing: Is to give a list of identified problems. A clearly list of problems is the most suitable basis for identifying potential solutions. Problems can be identified both now and in the future as evidence that objectives are not achieved. Once you identify problems, you can then observe and reflect what is going on, gather information relates and begin working on solutions.
  - ✚ Problems frequency: Is another way of thinking about problems definition would be: the goal or ideal state defines how much of a problem exists or even whether or not there is a problem.
  - ✚ Problems classification/ domains: Problems should be classed by both severity and impacts in terms of the number of affected people.

## Topic 3: Identification of factors affecting prioritization the problems

- ✓ Domain: Relate to the life style
- ✓ Needs: Important for them
- ✓ Means: Trying to achieve certain goals considered as appropriate
- ✓ Community needs
- ✓ Intervention area
- ✓ Financial means
- ✓ Sustainability
- ✓ Urgency

## Topic 4: Identification of problems analysis methods

- ✓ Definition: Is a process of understanding the real problems and users' needs and proposing abstract solutions to those problems. It can be defined as dissecting and thoroughly studying the problem with the objective to understand how the problem emerged and how it grew to its current proportions. When there is a clear cause, there is a clear solution.

## ✚ SWOT ANALYSIS

### ✚ Problem tree analysis

## Topic 5: SWOT analysis methods

- ✓ Definition: Is an analysis technique or a process which help to make problems analysis in relation to the extension services to provide solutions to the identified problems by farmers. It helps to focus on strengths, minimize threats and take the greatest possible advantage of opportunities available towards the improvement and development.
- ✓ It is a simple but useful framework for analysis personal internal and external factors that influence the problem solving.
  
- ✚ S (Strength): The characteristics that give an advantage to farmers, something that farmers are good at, something that helps farmers to become better.
- ✚ W (Weakness): The characteristics that give disadvantages to farmers or something farmers need to improve.
- ✚ (Opportunities): Those are external factors, occasions, chances or different avenues available to achieve development or to solve a problem.
- ✚ T (Threats): Those are external factors that may hinder or limit to achieve a development or solve a problem. They can be challenges, obstacles, limitation or barriers.
- ✓ **Steps to carry SWOT Analysis**
  - ✚ Identify the target/objective
  - ✚ Make a grid or SWOT boxes
  - ✚ Label each box by strength, weakness, opportunities and threats.
  - ✚ Fill up the quadrant of SWOT boxes: strength, weakness, opportunities and threats.
  - ✚ Conclude the analysis
- ✓ **SWOT Analysis format**

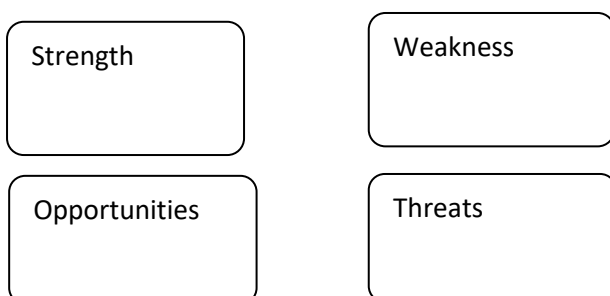


Figure 1: Illustrate SWOT format

## Topic 6: Problem tree analysis methods

A problem tree diagram is a way of visualizing the causes and effects relationship regarding particular problem situation.

It is a graphical arrangement of problem according to causes and effects.

Problem tree analysis should be followed by actual extension planning (Eg: with the logical framework approach) and it belongs to the family of participatory planning techniques in which all parties:( beneficiaries, organization, local government) involved in identifying and analyzing the needs together.

If you succeed in finding this out, you could take away the cause and eliminate it or take it away and thereby solve the problem.

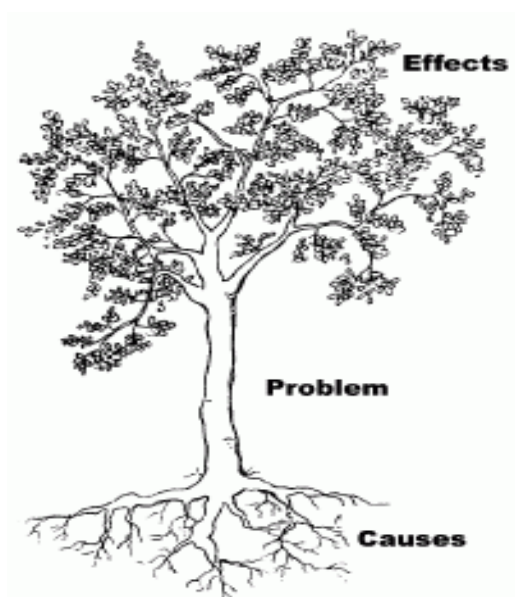


Figure 2: Indicate problem tree hierarchy

The analogy with a tree:

- ✓ Trunk represents core problem
- ✓ Roots represent causes
- ✓ Branches represent effects.

In such diagram, the causes are represented at lower levels, the effects at upper levels; the core problem connects the two. The trunk represents the core problem, the roots are the causes and the branches represent the effects.

e.g: Sometimes, lack of sufficient clean water could either become a cause or effect.

✓ Steps for designing a problem tree

- ✚ List all the problems that come to mind.
- ✚ Identify core problem
- ✚ Determine which problems are cause and which are effects.
- ✚ Arrange in hierarchy both causes and effects (means how do the causes relate to each other, which leads to other, etc.).

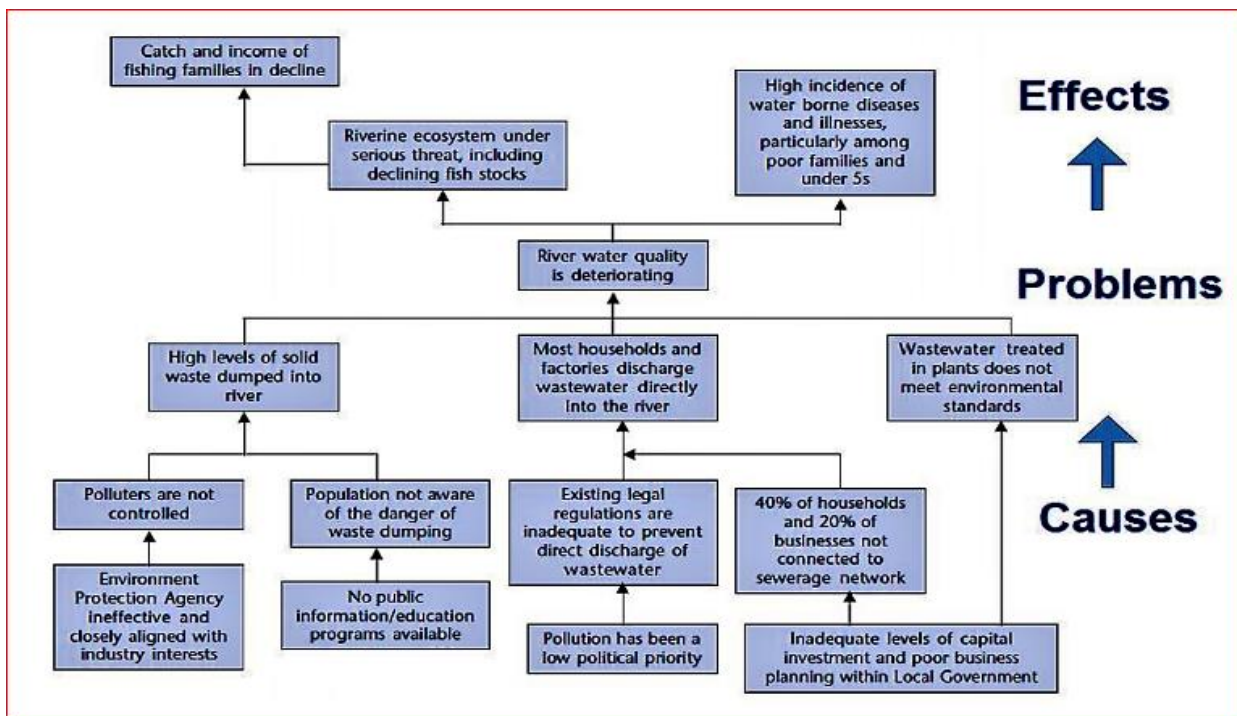


Figure No 3: Illustrate example of problem tree Source: European commission, 2004.

## Topic 7: Advantages and disadvantages of problem tree diagram

✓ Advantages of problem tree diagram

- ✚ Enables clear prioritization of factors and helps focus objectives.
- ✚ Understand better of the problem and causes
- ✚ Identifies the constituent issues and arguments and helps establish who and what the political actors are at each stage.
- ✚ Helps understanding purpose and action.

✓ Disadvantages of problem tree

- ✚ It may be difficult to understand all effects and causes of a problem right from the beginning.
- ✚ It is time consuming

## Topic 8: Problems solving

In almost every problem solving methodology, the first step is defining or identifying the problem even it is the most difficult and the most important of all steps. It involves diagnosing the situation so that the focus is on the real problem and not on its symptoms.

Firstly the problem can be defined broadly for better knowing it and in order to know how to solve it in achieving what we want to achieve.

### ✓ The stages of problem solving

The problem solving can be divided in different ways and stages. To be a successful problem solver you need to understand what are the stages involved and follow them methodically whenever you encounter a problem. Those stages are: Recognizing and identifying the problem, getting a clear understanding of the problem, finding possible solutions, choosing the best solution, implementing the solution and evaluating the solutions.

#### Recognizing and defining the problem

The need is to recognize that the problem exists. Once you have recognized a problem, you need to define, identify it by giving it a label (a tentative definition).

#### Finding possible solutions

Generally the closed problems have one or a limited number of possible solutions, while open problems usually can be solved in a large number of ways.

The most effective solution to an open problem is found by selecting the best from a large wide range of possibilities.

Finding solutions involves analyzing the problem to ensure that you fully understand it then constructing courses of action that will achieve your objective.

Constructing courses of action to solve the problem involves discovering what actions will deal with any obstacles and achieve your objective.

#### Choosing the best solutions

This is the stage at which you evaluate the possible solutions and select that which will be most effective in solving the problem. It is a process of decision making based on comparison of the potential outcome of alternative solutions.

### **This involves:**


- ❖ Identifying all the feature of an ideal solution including the constraints it has to meet.
- ❖ Eliminating the solutions which do not meet the constraints.
- ❖ Evaluating the remaining solutions against the outcome required.
- ❖ Assessing the risks associated with the best solution.
- ❖ Making the decision to implement this solution.

A problem is only solved when a solution is implemented.

The best solutions should be REAL: Realistic, Effective, Acceptable and logical.

### Implementing the solution

This involves three (3) separate stages:

- ❖ Planning and preparing to implement the solution.
  - ❖ Taking the appropriate action and monitoring its effects.
  - ❖ Reviewing the ultimate success of the action.
-  Evaluate the solutions: This refers to make an assessment of selected solutions whether are applied as chosen or planned.



## Learning Unit 2 – Develop technical package

### LO 2.1 – Formulate the topic

#### Topic 1: Characterization of a topic

✓ **Definition:**

A topic is a subject /topical/ theme or general area of interest which indicates what the farmers should learn or discuss during extension services.

✓ **Characteristics of topic:**

The topic must be SMART whereas:

- ✚ S (Specific): Precisely states what the extension worker is going to do and farmers are going to learn during extension activities.
- ✚ M (Measurable): Can be observed or counted during sensitization. It should quantify amount of changes expected.
- ✚ A (Achievable): Attainable within a given time frame.
- ✚ R (Realistic, Relevant): Is appropriate to the time and scope.
- ✚ T: (Time bound, time restricted): Can be achieved at given time.

✓ **Criteria of topic formulation:**

The topic must be formulated by extension agent before going on the field. It is formulated by basing on the farmers 'needs, time, audience, tools and material available, and method to be used.

Is also formulated by basing on the following questions:

To what extent is the topic known by the target audience?

Are they ready for demonstration?

To what extent is it compatible or incompatible with the scale?

#### Topic 2: Formulation of a proposal

✓ **Verification of the subject analysis**

Subject analysis may be defined as a set of issues/ problems that farmers may be facing.

This subject can be identified either by farmers themselves or by an extension worker.

The subject analysis applies to both indexing (provide in depth access to parts of items: chapter, articles) and cataloguing terms that summarize the primary subject focus of the work (Identifies).

It deals with the conceptual analysis of an item.

Subject analysis is the part of indexing or cataloguing that deals with: the conceptual analysis of an item and Translating that analysis into a particular subject heading system.

✓ **The two step processes are:**

- ✚ Ascertaining the subject aboutness of a document by describing its topic, the discipline in which the topic is treated and the form of the document and
- ✚ Translating subject into a controlled vocabulary.

Important considerations include: cataloguer objectivity, cataloger's background knowledge and consistency in determining the content.

### **Topic 3: Identification of problems related to the subject**

✓ **Identification of problems related to the subject:**

Is a way of thinking about problem definition would be the goal or ideal state defines how much a problem exists or even whether or not there is a problem.

A clearly specified list of problems is the most suitable for identifying potential solutions. It is identified both now and in the future.

✓ **Problem identification aims at:**

- ✚ Assist farmers to identify main problems that constraints their production, their causes and effects
- ✚ Assisting farmers in identifying the most appropriate service providers
- ✚ Assisting farmers in prioritizing the most immediate needs
- ✚ Targeting agricultural extension services towards addressing actual farmer's problem
- ✚ Preparing action plan, monitoring and evaluation
- ✚ Ensuring ownership and accountability of extension services delivery

### **Topic 4: Establishment of cause –effects hierarchy between the problems**

From the problems identified, an individual “starter” problem should be selected. In consultation with the participants, a hierarchy of causes and effects has to be established: problems which are directly causing the starter problem are put below and problems which are direct effects of the starter problem are put above. All problems are sorted in the same way (using the guiding question “what causes that?”. Once all the problems are in place, these should be connected with cause-effect arrows, clearly showing key links. After this process, the problem tree should be reviewed and validated by the participants.

Problem tree analysis should be followed by actual extension planning.

The problem tree method is a planning method based on needs; however it is not a mechanical translation of problems into objectives. It should be followed by actual extension planning.

A properly planned extension addressing the real needs of beneficiaries is necessarily based upon a correct and complete analysis of the existing situation which should be interpreted according to the views, needs, interests and activities of parties concerned. It is essential that all those involved accept the plans and are committed to implement them.

### **Topic 5: Visualization of cause –effects relations in a diagram**

It is a way of visualizing the cause and effect relationship regarding a particular problem situation.

Different individuals or groups given the same list of problems and causes will normally organize them differently in a tree diagram.

This is due to the different levels of knowledge and experience of each person and the amount of the time available for analysis.

Given sufficient time and exhaustive discussion, however different interdisciplinary teams are likely to produce very similar results.

In general, the more complete the level of knowledge of the participants and the longer the time dedicated to analysis, the greater the likelihood of similarity in results.

## **LO 2.2 – Identify attitudes of target group and extensionist**

### **Topic 1: Identification of attitudes, believes and values of the target group**

- ✓ Definition of target group: Is a group of people a program is designated to serve. In order for a program to remain focused and to deliver effective services, it must clearly define its target population and establish a referral mechanism that will ensure it receives the appropriate cases.
- ✓ The followings are the criteria based during target group selection: Size of the farmers, modes of exploitation and agricultural situation.
- ✓ Attitudes of target group: people show different behaviours towards a given service, extension agent must be aware of them. This can specify what people actually do.
- ✓ Believes and customs: Custom is a habitual practice, the usual way of acting in given circumstances. Also a customs is an authority or agency in a country responsible for collecting tariffs and

controlling the flow of goods including animals, personal effects, transports and hazardous items into and out of a country. Believes refer to the act of accepting that something is true without a proof.

- ✓ The culture of people have to be taken into consideration where sensitizing people. In one hand the cultural attributes/ components can help the extensionist to control his behaviour while on the field. On other hand, the culture traits/ aspects will show extensionist officer where to put the focus and how to organize the sensitization.

Make sure that not only the economic aspects but also the cultural aspects have to be understood as banana wine, sorghum beer are not sold but also given as a friendship gifts in the wedding ceremonies and in casual, mutual family visits.

- ✓ Values: These are guiding principles which dictate behaviour and can help people understand the difference between right and wrong.

The farmers have the values and taboos that they are observing, when sown in the transgression of these values, the extension officer will no longer have any influence on the farmers he is supposed to guide.

- ✓ Custom: Is a habitual practice; the usual way of acting in given circumstances.

## **Topic 2: Identification of extensionist attitudes**

- ✓ Innovative
- ✓ Organized
- ✓ Flexible
- ✓ Attentive
- ✓ Cooperative
- ✓ Team worker
- ✓ Patient
- ✓ Smartness
- ✓ Self-driven

## **Topic 3: Profile of extensionist**

- ✓ He should be literate (know how to read and write)
- ✓ He should be an opinion leader
- ✓ He should be a resident of the village
- ✓ He should own exemplary agricultural, livestock or forestry development activities

- ✓ He should be knowledgeable on national and District own agricultural and livestock development issues
- ✓ He should have basic knowledge on agriculture, livestock and development issues
- ✓ He should be having time to share knowledge with other farmers
- ✓ He should be active to learn and allocate this activity enough time
- ✓ He should be having good relationship with the cell and village leadership

### **Topic 3: Role and responsibilities of extensionist**

- ✓ To organize farmers needs assessment meeting according to the season
- ✓ To collect forestry data
- ✓ To facilitate farmers and livestock producers in preparing actions plan within the respective groups
- ✓ To design a simple land use map showing land use patterns within village
- ✓ To advise farmers on how best to form cooperatives
- ✓ To link farmers and livestock keepers with extension services
- ✓ To submit reports to extension services committee at village, cell and sector level
- ✓ To provide crop, livestock, forest production forecasts
- ✓ To sensitize farmers on soil conservation and land use management
- ✓ To sensitize farmers to seek support through technology development institutions.

## **LO 2.3 – Selection of forest extension methods**

### **Topic 1 : Selection criteria of extension methods**

Extension is a service or system which assists farm people through educational procedures in improving farming methods and techniques, increasing production efficiently and income, bettering their standard of living and lifting social and educational standards.

Extension is therefore ensuring that the techniques discovered are shown to the farmers and adopted by interested farmers.

In extension, methods, approaches and systems are described. Approach defines how to transmit knowledge /skills to the public while the systems define the organization of the extension services.

Extension methods are the way of communicating between farmers and extension agents. Through extension methods, knowledge and skills are disseminated to the farmers.

✓ **Selection criteria of extension methods**

- + Topic/proposal
- + Socio-economic
- + Target group
- + Working area or residents of the village
- + Opportunities on the teaching aids
- + Practical difficulties to apply the topic
- + Circumstances in which one works
- + Political-cultural conditions
- + Tools, materials and equipment availability
- + Time
- + Cost

## **Topic 2: Identification of individual extension methods**

Individual extension method is teaching a technical topic to a single farmer, previously selected and not a whole village or an entire district. It is mainly done with visits to farms or farmers households. It can also be applied in the case of training a model farmer who will train others in his/her turn

This type of extension is effective for activities that exclusively depend on the farmer or his household. Normally, it is recommended that the topics covered in this type of extension should be discussed with the family of the farmer. This gives more chance of achieving the desired results.

✓ **The individual extension method should be used in various ways:**

- + Farm and home visit
- + Training a model farmer
- + Face to face
- + Personal letter
- + Phone call
- + Informal contact

✓ **Advantages of individual methods of extension:**

- + Helps the Extension Agent in elaborating report.
- + Facilitates gaining first-hand knowledge of farm and home.
- + Helps in selecting demonstrators and local leaders.
- + Helps in changing attitude of people.

- + Helps in teaching complex practices.
- + Facilitates transfer of technology.
- + Enhances effectiveness of mass and group methods.
- + Facilitates getting feedback information.

#### **Disadvantages of individual methods of extension:**

- + Time consuming and relatively expensive.
- + Has low coverage of audience.
- + This method is the most expensive of all other used methods when one takes into account the cost it takes to train person one by one.
- + Extension Agent may develop favouritism or bias towards some persons.

### **Topic 3: Farm visit or household visit extension methods**

- ✓ It is very important for the extension worker to greet the farmer first before saying anything.
- ✓ Farm visits allow contacts between the farmer and the extension worker face-to-face.
- ✓ These visits require a lot of time from the extension officer that is the reason why they should be done only when their goals have been well clarified.

During such visits, the extension worker visits the farm with the farmer with or without the members of his family who explain him/her all the constraints in forest activities or market research.

This visit also gives the extension worker the opportunity to provide advices on issues poorly handled by the farmer.

Since agriculture is often a family activity, it is important for the extension worker to go in the household before leaving the farm in order to share with the other members (if they have not been able to visit the farm with him) all the suggestions about improving their farming activities.

#### **Farm visits can:**

- + Familiarize the extension agent with the farmer and his family;
- + Enable him to give specific advice or information to the farmer;
- + Build up the agent's knowledge of the area, and of the kinds of problems which farmers face;
- + Permit him to explain a new recommended practice or follow up and observe results to date;
- + Arouse general interest among the farmers and stimulate their involvement in extension activities.

#### ✓ **Advantages of visit to the farm and the household**

- + The message that is not understood by a farmer are clarified
- + The farmer has opportunities to talk in relaxed manner
- + Extension worker encourages him/her even to ask any question related to hi/her farming activities
- + It builds confidence between extension worker and farmer's family
- + Extension worker is able to create a cooperative climate with the farmer and his family
- + It allows an immediate feedback about the topic discussed
- + It allows to be sure that all the members of the farmer's family participate in decision of farm development
- + It facilitates immediate feedback on the effectiveness on discussed techniques
- + Is the best way to ensure that everyone in the family participates in decision making

#### ✓ **Disadvantages of visit to the farm and the household**

- + It is expensive in terms of time and transportation
- + Only a few farmers can be visited and in most of the time they are friends of extension worker
- + The area covered is small since all the effort is concentrated on few farmers
- + Favouritism may develop towards some farm

### **Topic 4: Visit a model farmer extension methods**

- ✓ The extension worker may not have frequent contact with all farmers. This is the reason why he is often focused on model farmers who help him in the extension of selected topics. The selected model farmer must have farming practices and attitudes superior to those of other farmers. He must be competent. A model farmer helps extension worker in demonstrating the advantages of good agricultural practice and persuading the others to adopt them in their turn.

Extensionist must meet model farmer in his or her and meeting must take place in the fields.

When the extension worker meets a model farmer in his field, he should invite other farmers to come and participate in discussions and make recommendations. The model farmer should be encouraged by extension worker to explain the recommendations to others.



✓ **Advantages of training a model farmer**

- ✚ The message reaches much more farmers in short time.
- ✚ Farmers are easily convinced of the importance of the method because they see one of them benefiting from those advantages.
- ✚ Extension worker use little time and resources comparing with individual.

✓ **Disadvantages of training a model farmer**

- ✚ The extension worker may choose a model farmer in whom the other farmers are not confident.
- ✚ The selected model farmer may not represent all categories of farmers.
- ✚ The farmer may not be able to explain the technique to others.

## **Topic 5: Face to face extension methods**

Also is called vis-à-vis method. It is the most extension method because it consists of a conducting interview or a discussion between farmer and the extensionist.

✓ **Advantages of face to face**

- ✚ It allows extension worker the opportunity to provide the necessary information to get solution to farmer's problem
- ✚ It facilitates the integration of information possessed by the farmer
- ✚ Extension worker can even help the farmer to better formulate and understand his problem
- ✚ Extension worker can increase the farmer's confidence to him due to the high consideration.

✓ **Disadvantages of face to face**

- ✚ Difficult in control of information dispersed by extensionist
- ✚ High cost resulted from this method because of innumerable displacement
- ✚ The time consuming issue that it takes to an extension worker towards the farmer's field one by one
- ✚ There is no reciprocal confidence between farmer and extension worker
- ✚ Only some farmers would benefit from this method
- ✚ This method doesn't intervene a lot in the resolution of collective problems.

## Topic 6 : Office call extension methods

Just as the extension agent visits the farmer, so he can expect that from time to time the farmer will visit him at his office. Such a visit is often a reflection of the interest which the agent may have aroused among the local farmers. The more confidence local farmers have in the extension agent, the more likely they are to visit him.

As with farm visits, office visits similarly have to be prepared. Although the agent may not know when a farmer is likely to drop in, he can at least arrange the extension office in such a way that the visitor feels at ease and can understand the activities of the office.

### **The arrangement could include:**

- ✓ Ensuring that access to the extension office is adequately posted and the agent's name displayed;
- ✓ Having a notice-board clearly displayed upon which useful, up-to-date information can be pinned;
- ✓ Having one or two chairs where visitors can wait for appointments;
- ✓ Displaying any bulletins, circulars or other written extension literature that the visitor can read.

For some farmers, a visit to the extension office may be a difficult experience. The agent should, therefore, try to put the farmer at ease, asking a few questions in order to get the farmer to explain his problems. The agent should be polite but purposeful, and try to find out the reason for the visit as quickly as possible. The outline of an extension office is important.

### **✓ Advantages of this method**

- ✚ Builds up farmer's confidence in extension agent.
- ✚ Helps to build up a good rapport with the farmer.
- ✚ Helps to change attitude of the people.

### **✓ Disadvantages of this method**

- ✚ The extension agent may find it difficult to understand the field problem through farmer's verbal description.
- ✚ It is not possible for the extension agent to be available in office all the time.

## **Topic 7: Personal letters extension methods**

Occasionally, the extension agent will correspond with a farmer by letter. Letters can be a follow-up inquiry resulting from an agent's farm visit, or sent because a farmer is unable to make a personal office visit. Drafting and replying to letters are very important skills for the extension worker and he should give every thought to them. Problems can arise with the use of words or complex technological language, or if the letter has been badly typed or written.

In writing a letter to a farmer, the extension agent should try to put himself in the farmer's shoes. The letter should be in the local language, preferably not on impressively headed writing-paper, and should always contain some personal greeting to the farmer.

Often, farmers will show such letters to their neighbours and thus it is important to create a favourable impression. The following points are important:

- ✓ Letters should be clear and concise, so as not to confuse the reader;
- ✓ The information in the letter should be complete and relevant to the issues raised;
- ✓ Where possible, letters should be answered promptly. If time is needed to collect information for the reply, a short letter of acknowledgement should be sent;
- ✓ A copy of the letter must always be made and entered in the office file.

## **Topic 8: Phone calls and informal contacts**

- ✓ Telephone calls and office visits serve a very similar purpose. It is improbable that the extension worker will deal with many of the farmers in his area (if at all) by telephone. If the telephone is used, however, it will not be for long discussion but for passing on specific advice or information.
- ✓ Informal contacts: Informal contacts will occur continually during the agent's stay in a particular area. Market days, holiday celebrations or religious events will bring him into contact with the farmers with whom he is working who will inevitably talk about their problems. By attending such events, the agent can become well acquainted with the area where he works and with the farmers and their problems, and he will be able to pass on ideas and information on an informal basis.

## Topic 9: Identification of group extension methods








Group extension method is done by a group of people. It is done by through meeting whether those organized for extension services such as preparation of nurseries or those organized for other purpose. The most suitable size for groups in rural extension is between 20 and 40 members.

In this method, the Extension Agent communicates with the people in groups and not as individual persons. The method is used when it is necessary to communicate with a number of people simultaneously; who are located not too far off from the communicator and time available for communication is reasonably adequate

The extension agent should consider the use of the group approach in his work with farmers. The use of groups in extension has become more common over the past decade, and indeed a number of new ideas have emerged about how groups may be used most effectively.

In this method facilitates the interactions or exchange of ideas between peasants themselves at the time of training. Generally, the methods of popularization by group are more expensive per an individual trained in comparison with the method of mass media especially when the group is very restricted. Therefore, it is used when one needs a feedback or a fair interaction with the people to train.

### ✓ Techniques of group extension methods

-  Speeches
-  Demonstration
-  Group meetings
-  Field days
-  Tours
-  Panel discussion
-  FFS

### ✓ **Advantages of group methods**

It has been seen that individual extension methods can be costly in both terms of time and scarce extension resources, and that they reach only a limited number of farmers. There is also the danger that too much emphasis upon individuals can lead to undue concentration on progressive farmers to the detriment of the poorer farmers.

- + Enables Extension Agent to have face-to-face contact with a number of people at a time.
- + Enables the Extension Agent to reach a selected part of the target group.
- + Facilitates sharing of knowledge and experience and thereby strengthen learning of the group members.
- + Reach fewer people, but offer more opportunities for interaction and feedback.
- + Satisfies the basic urge of people for social contacts,
- + Motivate people to accept change due to group influence.
- + More effective than mass method in stimulating action.
- + Less expensive than individual method owing to wider coverage.

### ✓ **Disadvantages of group methods**

- + Wide diversity in the interest of group members may create a difficult learning situation.
- + Holding the meeting may be regarded as an objective itself.
- + Vested interests, power groups and village factions may hinder free interaction and decision making by group members.
- + Individual problem are not well examined in a group.

## **Topic 10: Speech extension methods**

Method of speech is very important in forest extension.

### ✓ **Advantages of speeches method**

- + It has the following advantages:
- + The speaker can adjust the content of his/her speech to the needs and interests of her/his public while taking into account its level of education and urgent needs
- + Extension worker can also modify from time to time his/her approach according to the reaction of the public

- ✚ The public can judge the degree of understanding or mastery of the topic taught by the extension agent
- ✚ The public can also have the right to ask some questions for better understanding or to make useful comments after speeches

#### ✓ Disadvantages of speeches method

- ✚ Spoken words and even the told sentences are easily forgotten
- ✚ A listener like a speaker can lose the point of speech easily
- ✚ A spoken speech risk about dragging repetitions of useless histories
- ✚ Capturing the attention on a given topic for more than 15min is no easy and needs a talent
- ✚ Publications can be reared if necessary whereas talks and speeches are for a limited moment

### Topic 11: Group meetings extension methods

Meetings are effective opportunities for getting information from the community, for discussing individual problems or those interesting individuals and more for giving messages to a large number of farmers.

Meetings can be arranged on the field in multipurpose rooms or elsewhere such as under a tree.

Meetings are often used by authorities facing controversial ideas as the conservation or controlled exploitation of forest or agroforestry one.

Calling the members of a group or the inhabitants of a local community together for a meeting is the commonest group extension method.

The agent will probably have information about a new government policy, or agricultural idea or practice. He will want to introduce this new information, to seek the opinions of community members and gain their support for extension activities. Indeed, there are a whole range of purposes for such community or group meetings.

They can also be concerning the popularization or farming development in order to help the member of a given community to identify and to find themselves some solutions to their own problems.

In a meeting of a group, extension worker must consider himself/herself like all other members of the group that he/she joins in order to help solving some farming problems of the rural areas together with other farmers.

They are very important as method of extension or popularization because they offer the easy possibility to influence the behaviour of the participants.

✓ **The main purpose of group meetings is:**

- + Introduce and discuss new ideas and practices
- + Create a favourable attitudes towards a forestry as means of local community development
- + Obtain opinion of some members of community on possible community
- + Get support for solving some local problems by means of suitable forestry extension program.

✓ **Types of group meeting based on purpose.**

- + Information meetings: The agent calls the group or community together to communicate a specific piece of new information which he feels will benefit them and upon which he seeks their advice.
- + Planning meetings: The main purpose is to review a particular problem, suggest a number of solutions and decide upon a course of action.
- + Special interest meetings: Topics of specific interest to a particular group of farmers (e.g., horticulture, bee keeping, or dairy farming) are presented and discussed in detail at a level relevant to those participating.
- + General community meetings: Men, women and young farmers of a community are invited to attend to discuss issues of general community interest. It is important to hold such general meetings occasionally so as to avoid any community group feeling that it is excluded from extension activities.

Whatever the case, however, the agent should only call a meeting if he thinks that it can be useful. If farmers feel that their time has been wasted in coming to a meeting, they may refuse to come to subsequent meetings and thus frustrate the agent's work. Once he decides to hold a meeting, the agent should make careful preparations and check a number of important arrangements which will be necessary to ensure a successful meeting.

### ✓ **Advantages of group meeting**

- + Promotes collective decision making as well as individual decision making by using knowledge and experience of group members.
- + The group process enhances people's participation and facilitates program implementation
- + It develops the capability of the people to face challenges and adverse situations.

### ✓ **Disadvantages of group meeting**

- + Requires understanding of group dynamics and skill of the extension agent.
- + Village factions may hinder successful use of this method
- + Some self-discipline among members is needed for the method to be successful.
- + It is a slow process and may not be suitable in crisis or emergency situations.

## **Topic 12: Group demonstration extension methods**

Farmers like to see how a new idea works, and also what effect it can have on increasing their crop production. Both purposes can be achieved by means of a farm demonstration. A good, practical demonstration is an invaluable method in extension work. The demonstration is a particularly powerful method to use with farmers who do not read easily.

A demonstration will give such farmers the opportunity to observe, at first hand, the differences between a recommended new crop practice and traditional practices. The strength of the demonstration should lie in its simplicity and its ability to present the farmers with concrete results.

There are two principal types of demonstration used by extension agents - method demonstration and result demonstration.

### ✓ **Method demonstration**

Method demonstrations basically show farmers how to do something. In the method demonstration, the farmer is shown step by step how, for example, to plant seeds in line, to use a mechanical duster to control insects, or to top tobacco. The agent will probably be dealing with farmers who have already accepted the particular practice being demonstrated, but who now want to know how to do it themselves.



It shows to the farmers how a specific activity is applied or a task is carried out. This type of method is one of the old methods used in teaching. It is a very good method because farmers can practice, see, hear and discuss during the demonstration.

The main advantage of the method demonstration is that the extension agent can explain simple farming skills to a large number of farmers, thus increasing the impact of his extension work. Moreover, as farmers are able to participate, there is a greater chance that they will benefit from the demonstration than if they were passively hearing it in a lecture.

The main limitation of a method demonstration is that, if there are too many farmers present, only a few get a chance to see, hear and do. The agent must be conscious that the demonstration is a learning experience and prepare the event accordingly. It is also vital that the demonstration be well thought out and competently conducted.

#### ✓ **Advantages of method demonstration**

- + There is exchange of experience and ideas among the group
- + It involves seeing, hearing, participation and practicing in a group which stimulate interest and action.
- + As the results of method demonstration are known within a relatively short time, it is very effective in persuading people to acquire the skill.
- + It is less expensive
- + Extension worker speaks to many farmers at once
- + Extension worker has opportunity to explain the most complicated things to the farmers

#### ✓ **Disadvantages of group demonstration**

- + Individual problems are not well examined
- + Extension worker can lose the confidence of farmers if demonstration is not much well prepared
- + Suitable mainly for practices involving skills
- + Require good deal of preparation, equipment and skill of the extension agent.
- + Not all the participants may get the opportunity to practice the skill depending on the size of the gathering and time available.

## ✓ Results demonstration

Result demonstration is a method of motivating the people for adoption of a new practice by showing its distinctly superior result, or a result demonstration is a method of teaching designed to show by example the practical application of an established fact, or group of related facts. It is a way of showing people the value or worth of an improved practice whose success has already been established on the research station, followed by district trails or observation plots.

When showing farmers the results of a practiced method seen by their eyes may lead farmers to agree and to adopt the new practice recommended by extension worker.

The main purpose of a result demonstration is to show local farmers that a particular new recommendation is practicable under local conditions.

A result demonstration is an ideal way to present to farmers a comparison between traditional and new practices. It can also help to establish confidence in more scientific farming methods and increase the farmers' confidence in ideas originating from research stations. It shows proof of the value of a new practice. A result demonstration is also a useful tool that an agent can use to establish confidence among farmers in a new area.

## ✓ Advantages of this method

- ✚ This method is less expensive
- ✚ Extension worker involves many farmers at once
- ✚ Successful demonstration is very positive for extension officer
- ✚ Is a great way to locally promote new a practice
- ✚ There is exchange of experience and ideas among farmers
- ✚ It could open the way for further interaction with farmers

## ✓ Disadvantages of this method

- ✚ Demonstrating results takes long term
- ✚ Not much prepared, this method may lead to failure
- ✚ Results needed to be studied in detail and with great care

### Topic 13: Field days or farmer's day extension methods

Field days are usually opportunities to hold method or result demonstrations on a slightly larger scale, and are usually run in a more informal and less highly structured manner. The purpose is often to introduce a new idea and a new crop, to stimulate the interest of as many farmers as possible and to allow target farmers observing personally learning about cultivation practices.

Field days are held on farms of local farmers, experimental stations, public centres or other government centres when farming techniques are shown or where the result of the research are communicated. There is a greater chance of making an impact if the field day is held on a farmer's land, and if the farmer plays a part in running it and explaining the purpose.

Field days can range in size from a small group to annual events attracting hundreds of farmers. Since the aim is a general introduction to some new idea, there is less need to be concerned about limiting the numbers. The extension agent's role on the field day is to support the farmer on whose land it is being held, to offer general guidance to ensure that things run smoothly and to be available to answer questions and queries.

It is probably better not to over organize the field day but to try to create an atmosphere in which visiting farmers can inspect, inquire, question and generally get to know what is available.

It may be useful, however, to bear a few additional points in mind.

- ✓ Limit the numbers to the capacity of the field, to avoid overcrowding.
- ✓ Ensure a good layout of field-day activities, with easy access and facility of movement around the field.
- ✓ Encourage the demonstrator farmer to take most of the initiative; give him support but do not take over the field day from him.
- ✓ Provide suitably large visual material and also, if necessary, a loudspeaker, to ensure that all can hear. Check that extension literature and other material are available for consultation.
- ✓ Conclude the field day by bringing all the participants together, reviewing the day's proceedings and the main items seen and discussed, and explain any future relevant extension activities.

A field day is a day out for farmers and is often a welcome relief from their daily hard work. The agent should, therefore, provide an interesting and well-presented exhibition, suitable refreshments and points

of rest, and generally create an atmosphere in which the farmers will feel at ease and will be eager to know what is going on.

✓ **Advantages of field days**

- ✚ The method gives the participants to visually observe the benefits that can be gained by application of the practice.
- ✚ Helps the farmers to socialize and to acquaint themselves with outside persons like Subject Matter Specialists.
- ✚ Extensionist has opportunity to clarify details not yet well understood by the farmers
- ✚ Builds confidence of demonstrating farmers to continue with the practice and help in the extension effort to spread its wider application in the farming community

✓ **Disadvantages of field days**

- ✚ Field days cannot be held frequently
- ✚ Does not facilitate in-depth learning
- ✚ Extension worker may lose the confidence of farmers if he asked questions to which he is not well prepared

## **Topic 14: Field tours or field trips extension methods**

Farmers like to visit farms in other districts to see how they work, what they grow and what kinds of problems the farmers there are facing. A tour is a series of field demonstrations on different farms, or at different centres, and can often attract a lot of interest from local farmers. The tour should give local farmers a chance to see how other farmers cultivate their land, and to exchange ideas and experiences with them. It is important, therefore, that the area to be visited be in some way similar agriculturally to that of the visiting farmers.

It serves to visit or to organize the journey of study in the experimental plots situated outside of the farmer's own region. The extensionist are also asked to join such organized groups or to organize more efficiently if possible. It is excursion visits or journey of the study.

During tour, one can visits the best exploitations of the regions means those of the farmers which distinguish themselves positively from others.

Thus, it is good in this case to let the visited farmers to explain themselves the group of visitors rather than to let extension worker monopolizing the speech.

As with all other forms of extension, tours have to be well thought out, planned, prepared and conducted. The five stages of determining the objective, planning the content, preparing the arrangements, conducting the tour and arranging for appropriate follow-up will be a guide to the extension agent.

**However, it may be useful to add these points:**

- ✓ Visit the area first to become familiar with local conditions, the farms to be visited, the route and road conditions.
- ✓ Limit the tour to what is possible. It is better to do a short tour in which visitors can have a good look at local farms than to arrange an ambitious tour and be pushed for time. Don't tire the visitors out.
- ✓ Encourage the host farmers to do all the explaining and to take charge of the tour.
- ✓ Arrange for food and drink during the tour.
- ✓ Conclude the tour with a short summary of the main events and note any comments or conclusions.

A field tour is an ideal method of involving farmers and of stimulating genuine interest in extension activities. It is also very useful in bringing farmers together to discuss common problems, and to gain useful experience of other areas.

## **Topic 15: Discussion workshops for peasants or panel discussions**

Discussion workshops are beneficial when the discussions are conducted in small groups. During discussions, neighbours gather together in a certain house at a certain time to review and discuss common problems, to better know each other and exchange information and ideas on farming activities in order to help each other.

### ✓ **Advantages of this method**

- ✚ Topics other than those related to agriculture are discussed
- ✚ Extension agent has opportunity to help talking shy farmers
- ✚ There are exchange of experience and ideas among the group

### ✓ **Disadvantages of this method**

- ✚ He succeeds better than in villages supported by the Government or in urban work areas
- ✚ Achieve the final decision could take a long term

- + Discussions can be dominated by the most influential people in the group
- + It is sometimes difficult to make people accept a certain idea and to work together.

## Topic 16: Farmers field schools

In the FFS, farmers carried out experimental learning activities that helped to understand the ecology of their crop fields. Knowledge gained through these activities enabled farmers to make their own locally-specific decisions rather than adopt generalized recommendations that had been formulated from outside the community.

It is a season-long training activity that takes place in the field. It is season-long so that it covers all the different developmental stages of the crop and their related management practices. The training process is always learner-centred, participatory and relying on an experiential learning approach.

### ✓ Changes expected in use of FFS approach

- + Farmers as Experts
- + The Field is the Learning Place
- + Extension Workers as Facilitators Not Teachers
- + Scientists/Subject Matter Specialists
- + Work with Rather than Lecture Farmers
- + The Curriculum is integrated
- + Training Follows the Seasonal Cycle
- + Regular group Meetings
- + Learning Materials are Learner Generated
- + Group Dynamics/Team Building

## Topic 17: Mass media extension methods

In this method, the Extension Agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual and group identity.

It consists of teaching simplified techniques to a group and undetermined individual who are not gathered together for learning.

The method is used when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators and Subject Matter Specialists involved. The size of the audience may vary depending on the technique used.

This method is done through the newspapers, magazines, the radio, the television, posters, the leaflets, drama, films, slide show, exhibits and displays, circular letters, brochures, handouts, new letters, and the facts sheets in order to change opinions and the behaviours of the mass towards adoption of the modern technologies.

**For mass media be effective, farmers should:**

- ✚ Able to access this type of media
- ✚ Be exposed to the message , they may have radio and others,
- ✚ Understand the message
- ✚ Be attentive to the message: where the information must be made attractive and presented in such a way that farmers find it is important to them.

✓ **Advantages of mass media**

- ✚ Suitable for creating general awareness amongst people.
- ✚ Many people have the same information
- ✚ Helps in transferring knowledge, forming and changing opinions.
- ✚ Large number of people may be communicated within a short time.
- ✚ Facilitates quick communication in times of emergency.
- ✚ Reinforces previous learning.
- ✚ It is faster and less expensive considering the number of farmers reached

✓ **Disadvantages of mass media**

- ✚ Less intensive method.
- ✚ Selective publication, memory and selective discussion
- ✚ Little scope for personal contact with the audience.
- ✚ Little opportunity for interaction with and amongst the audience.
- ✚ Generalized recommendations hinder their application by individuals.
- ✚ Little control over the responses of audience.
- ✚ Difficulty in getting feedback information and evaluation of results.

## Topic 18: Techniques of mass media

Methods of mass media are divided into 2: Farm publication and, display and exhibits.

### ✓ Farm publication

It is a class of publications prepared by the extension agency in printed form, containing information relating to the improvement of farm and home. Farm publications can be of various types and they may be used singly or in combination with other extension methods.

Farm publications are extremely useful to the literate farmers. Even illiterate farmers can make use of them with the help of literate members of their family. They may be used in most of the individual, group and mass methods.

### Newspapers and magazines

Those are part of what is called static media because they involve neither sound nor movement.

These media types are not much used in rural areas because often there are few people who can read. Some farmers like contact farmers can read. But the contact farmers can read them. In writing media message, the considerations are:

- ❖ Well defining the context
- ❖ Knowing the audience before planning the content of the message to write
- ❖ Deciding on the content
- ❖ Attracting attention
- ❖ Information structure
- ❖ Test

### ✓ Advantages of using newspapers and magazines

- ❖ Topics are well explained
- ❖ If there is something the farmers did not understand, they can go and find the writing, review it and if necessary re-contact the extension agent

### ✓ Disadvantages of using newspapers and magazines

- ❖ Most farmers cannot read or write and one may run the risk of not being well understood when writing rules are not followed
- ❖ Writing newspapers and publication magazine require a lot of means and time
- ❖ Production of both programs and printing materials are costly
- ❖ They require special skills



- ✚ Leaflet: Is usually a single printed sheet of paper of small size, containing preliminary information relating to a topic.
- ✚ Folder: A single sheet of printed sheet of paper of big size, that is folded once or few times, giving essential information relating to a particular topic.
- ✚ Bulletin: A printed, bound booklet with a number of pages, containing comprehensive information about a topic
- ✚ Newsletter or circular letters: A miniature newspaper printed in good quality paper, containing information relating to the activities and achievements of the organization. It has a fixed periodicity of publication.
- ✚ Facts sheets: Are printed media used in extension to show information about situation, organization or particular situation exist.
- ✚ Journal: Periodicals containing information related to various topics of interest not only for the farmers but also for the extension agents.

## Topic 19: Exhibition and display mass media

### ✓ Exhibition and display

An exhibition is a systematic display of models, specimens, charts, photographs, pictures, posters: posters are pieces of paper or cardboard which bear an illustration and usually a few simple words, information, etc., in a sequence around a theme to create awareness and interest in the community. They are held at many different levels, ranging from village to international.

#### ✚ Audio-visual aids

Audio-visual aids are instructional devices which are used to communicate messages more effectively through sound and visuals. The aids help in stimulating the sensory organs like ears and eyes, and facilitate quick comprehension of the message by the audience. These may be used for literate as well as illiterate people and has the following advantages:

- ❖ Capture audience interest and arouse their interest.
- ❖ Highlight the points of the message clearly.
- ❖ Possibility of misinterpreting concepts is reduced.
- ❖ Structure the learning process more clearly.
- ❖ Messages perceived with several senses are understood and retained better.
- ❖ Help more people irrespective of their level of literacy and language.
- ❖ Speed up learning process.
- ❖ Save time for the communicator and receiver

### **Choice of Audio-visual Aids**

Audio-visual aids are used singly or in combination with other aids and extension methods. The Extension Agent should be well conversant about the audio-visual aids and acquire sufficient skill in handling them before using them in extension programs. The choice of audio-visual aids shall depend on a number of considerations such as:

- ❖ Teaching objective: whether to give information, to impart skill or bring about change in attitude
- ❖ Nature of subject being taught: Particular aspect of the technology and whether understanding depends on seeing or not.
- ❖ Nature of audience: Their age, education, interest, experience, knowledge, intelligence, etc.
- ❖ Size of the audience: Small or large.
- ❖ Availability of equipment, materials and funds.
- ❖ Skill and experience of the extension agent in preparation and use of audio-visual aids.

### **Rural radio program**

Radios are extremely important in the extension to transmit new technology to large number of people. The battery powered Radios are common in rural areas. With radio information can reach instantly across the country. Urgent and alert information are transmitted by the radio quickly and at a very long distance compared to the work of extension agent perform or compared with the use of posters or newspapers. Radio is good medium to create awareness for new ideas to many people.

Extension programs routinely use two transmitter sites including: an open program ( Brief announcements recorded and repeated several times during the day or longer programs on the radio station or live or taped and a listening group where the farmers gather together to listen to the radio in the forms of clubs or forums.

### **Advantages of this method**

- ❖ Many farmers are equipped with Radio
- ❖ Listening groups can give good results because the participation of listener is more intense than he/she listen to the Radio alone.
- ❖ Rapid spread of information
- ❖ Many people can be reached within a short time even in remote areas
- ❖ Cost effective due to large coverage

### **Disadvantages of this method**

- ❖ Difficulty in getting feedback information
- ❖ Radio reception limitation in some areas
- ❖ Some people don't listen the radios
- ❖ Difficult to evaluate impact or results
- ❖ The group is dissolved when the series of program is finished
- ❖ It is difficult to come back on non-understood points
- ❖ Little opportunity for interaction with and amongst the audience
- ❖ Selective discussion and publication.

### **Television and internet**










Those are normally part of the method of mass popularization or extension.

The internet would be the most used medium over the world with especially the advent of the virtual libraries. It is just sufficient to have connection to the internet to be able to navigate everywhere. There are special sites to distribute agricultural knowledge, skills and information.

TV like film, video with sound and recordings can also be an instant medium, transmitting information directly to a mass audience.

## **LO 2.4 – Develop the participants and facilitator's manual**

### **Topic 1: Determination of components of extension manual**

- ✓ A manual is a technical communication document intended to give assistance to people using a particular system. It is usually written by a technical writer. It helps an extension worker to easily transmit new agricultural practices.
- ✓ An appropriate Manuel must be:
  -  Technically feasible,
  -  Economically feasible, and
  -  Socially acceptable.
- ✓ The components of extension manual are:
  -  Topic/proposal
  -  Needs of classification
  -  Chosen solutions
- ✓ Planning activities and responsibilities showing :
  -  Who is doing
  -  What
  -  When

- ✚ With whom
- ✚ For how much
- ✓ Components description

## Topic 2: Structure of extension manual

A manual is a handbook/booklet document operated by means of the hands (of a machine or a device) and has the following structure:

- ✓ Logical frame work: Is a framework logically composed of goals, objectives , purpose, outcomes, resources, planned activities, inputs, outputs, implementation involved actors, indicators, target, criteria, time frame, assumption and responsibility.

- ✓ A framework is a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful.

A conceptual framework is a set of theories accepted to serve as guiding principles of research.

It is used to make conceptual distinctions and organize ideas.

The information of a manual must have a structure which is:

- ✚ Well defining the content
- ✚ Subdividing the content into sections that logically follow one another, headings, subheadings, subdividing, underlining or highlighting important points. It has an introduction, development, conclusion and recommendations.

## Topic 3: Procedures of extension manual reduction

- ✓ Introduction
- ✓ Objectives
- ✓ Needs and results
- ✓ Resources
- ✓ Materials and tools used
- ✓ Methods used
- ✓ Synthesis
- ✓ Site
- ✓ Duration
- ✓ Conclusion and recommendations
- ✓ References
- ✓ Appendices

## Learning Unit 3 – Prepare tools, materials and equipment

### LO 3.1 – Select and adjust tools, materials and equipment

#### Topic 1: Selection criteria of tools, material and equipment

The followings are criteria to follow during selecting tools, materials and equipment:

- ✓ Target group
- ✓ Innovation to extend
- ✓ Socio-economic conditions of farmers
- ✓ Politico-culture, values of farmers
- ✓ Topic/ proposal
- ✓ Cost
- ✓ Availability of tools, materials and equipment
- ✓ Working area

#### Topic 2: Instructions of tools, materials and equipment adjustment

Instructions depend on the manufacturer of tools, materials and equipment. You have to read carefully instruction written on catalogue and label and follow them. Some adjustment techniques are:

- ✓ Fixing well the screws
- ✓ Recalibrate the tools and materials before using
- ✓ Adjust the parts of tools and materials
- ✓ Power on and power off to check if tools and materials are in good conditions
- ✓ Perform simple manipulation or handling of tools and materials
- ✓ Install or hang on tool, material on the ground.

#### Topic 3 : Types of tools, materials and equipment

Types of extension tools, materials and equipment are:

- ✓ Simple: Ex: papers, pens, pencils, notebook, books, leaflets, agenda, markers,
- ✓ Optical: Ex: Phone, camera digital, projector, laptop, Radio, Television, Tablet,
- ✓ Non optical: Ex: PPE, flipchart, white board, posters,
- ✓ Motorized: Ex: vehicles, generator, batteries, Electrical equipment,

## LO 3.2 – Maintenance of tools and equipment

### Topic 1: Instructions of tools, materials and equipment from manufacturer

Maintenance instructions of tools, materials and equipment are the following:

- ✓ Use tool or material the intended use
- ✓ Clean tool or material before and after using
- ✓ Regular maintenance of tool or material
- ✓ Wash and dry tool or material after using
- ✓ Repair damaged parts of tool or material when they are broken
- ✓ Oiling metal tool or material for avoiding rust
- ✓ Replace damaged parts

### Topic 2: Storage conditions regarding to the manufacturer instructions

Those conditions must be favourable in order to avoid tools, materials and equipment damages.

- ✓ Storage conditions of tools or materials are:
  - + Aeration O2 circulation
  - + Temperature
  - + Humidity
  - + Light
  - + Dry and cool place/ room
  - + Clean
- ✓ Storage instructions of tools or materials are:
  - + Store tools, materials and equipment in a dry place
  - + Store tools, materials and equipment in a clean place
  - + Store tools, materials and equipment in a shade place
  - + Keep tools, materials and equipment in a good conditions of light, temperature, humidity and air circulation

### Topic 3 : Maintenance techniques

Maintenance techniques are:

- ✓ Simple repairing
- ✓ Cleaning
- ✓ Oiling
- ✓ Covering
- ✓ Replacing damaged parts
- ✓ Drying
- ✓ Washing
- ✓ Dressing and
- ✓ Iron equipment like PPE and cotton covers.

## Learning Unit 4 – Conduct extension

### LO 4.1 – Prepare the workplace

#### Topic 1: Identification of criteria of workplace selection

The criteria of workplace selection are:

- ✓ Topic/proposal
- ✓ Target group
- ✓ Opportunities
- ✓ Accessibility of working area
- ✓ Objective
- ✓ Target group
- ✓ Farmer size
- ✓ Method used

#### Topic 2: Organization of the workplace

- ✓ Tools and equipment availability: Avail all needed tools, material and equipment which help in activity of teaching farmers make them become accessible easily. Those can be: projector, flipchart, chairs, tables, pens, notebooks, markers, white board, VCR and DVD player, generator, power extension cables, related documents, posters, vehicle, microphones, speaker and leaflets.  
Locate tools, materials and equipment in the workplace where there will be used allowing farmers to be retrieved quickly and easily while teaching activities.
- ✓ Place cleaning: The workplace must be healthy means that there is no source of diseases, in good climate and safety means that free from injuries, accidents, risks, hazards and danger. When you clean by removing all things that are observed as not good to human health and safety such as wastes, dusts, bushes, weeds, broken glass bottles or cups, decay stumps, thorn plants if the sensitization or teaching occurs on the ground or on farms. When it is occurred in the hall or meeting rooms, you can wash, sweep, clean the dusts and after make a decoration and provide electrical equipment, waste bin, provide latrines, provide conduct regulations for fire safety and emergency response.



- ✓ Sitting arrangement: This refers to the planning of placement and organization of workplace's tools, material and equipment and also activities to promote appropriate behaviour and facilitation of movement. Chairs and tables are arranged in good order for flexibility of actions and easy to move. Arrange also how the seats are being laid out in the workplace according to the size and shape of room, size and age of farmers, learning methods and objectives.

Most common seats arrangement/shapes if teaching held in the meeting room:

- ✚ Traditional rows or columns
- ✚ U-shape
- ✚ Groups or pairs
- ✚ Ran away

If the transmission of new technologies held on the field, the extension agent seeks for an appropriate sitting which enables to communicate easily and it can be carried out under a tree canopy.

## **LO 4.2 – Apply extension methods**

### **Topic 1: Procedures of individual forest extension methods**

- ✓ Procedures of individual methods: Eg. farms visit

- ✚ Planning for preparation

Decide on the audience and the objectives – whom to meet and what for?

Get adequate information about the topic.

Collect relevant publications and materials to be handed over.

Make a schedule of visits to save time and money.

If possible, send advance information.

- ✚ Implementation

Visit on the scheduled date or according to convenience of the farmer and when the person is likely to listen.

Create interest of the farmer and allow the individual to talk first.

Present the message or points of view and explain up to the satisfaction of the farmer.

Answer to questions raised and clarify doubts. Hand over publications, if any.

Try to get some assurance for action.

### Follow-up

Keep appropriate record of visit

Send committed information or material

Make subsequent visits as and when necessary

## Topic 2: Procedures of group extension methods

- ✓ Procedures of group demonstration: eg: Group demonstration

### Planning for preparation

Identify the problems giving due consideration and involving the local clientele

Select the skill which is important and needed by the farmers for immediate use

Ensure the participation of subject matter specialists.

Assemble the relevant information, materials and equipment.

Plan the presentation step-by-step including an introduction and summary, and practice the demonstration.

Decide on the date and time for the demonstration in consultation with the farmer leaders and relevant subject matter specialists, and give timely intimation to all concerned.

Display diagrams, photographs, charts, etc., at the demonstration site.

### Implementation

Start the demonstration on the scheduled date and time in the presence of those who will be present.

Welcome the attending farmers and explain the objectives of the demonstration.

Show each operation step-by-step, explaining clearly why and how it is done.

Ensure that all the participants have seen the demonstration and have understood it.

Repeat difficult steps if required.

Invite the participants one by one or in small batches to practice the skill.

Clarify doubts and answer their questions.

After the participants have completed practicing the skill, summarize the proceedings highlighting the key points.

Hand over relevant publications.

### Follow-up

Keep a record of the participants and maintain contact with them

Assist participants to acquire the required material and equipment.

### Topic 3: Procedures of mass media extension methods

#### ✓ Procedures of mass media

##### Planning for preparation

Decide about the topic, the location, date, time and the participants.

Make a written program identifying the activities and responsibilities of suitable persons

Involve the farmers and youth to assist in the preparations at all stages from programming to preparation of displays including charts, exhibits, and diagrams, and in organizing and decorating the site.

Collect relevant publications and prepare a handout for the occasion.

Arrange public address system, required materials and equipment, vehicles, etc.

Inform invitees, farmers and, depending on the scale of the event, mass media personnel.

##### Implementation

Welcome the participants on arrival. Start the sensitization at scheduled time by giving a brief introduction on the purpose of sensitization. End the sensitization by thanking the participants for their participation and the people who have helped in various ways and then after distribute written leaflet and other mass tools and materials.

##### Follow-up

Maintain contact with the participants to keep their interest and promote adoption of the new practice

Reinforce learning about the practice through use of mass media.

### Topic 4: Choice of forest extension methods

The choice of extension methods must be done by extension worker based on:

- ✓ The oldness or novelty of the topics because extension methods are not the same in the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> year of their launching
- ✓ Teaching aids opportunities of the extension officer
- ✓ Residents of the village in which we disseminate topics
- ✓ Practical difficulties to apply the topics

## Topic 5: Identification forest extension approaches

Forest extension approach defines how to transmit knowledge to the farmers. Several approaches have been tested and adopted by countries in Africa to improve the technology dissemination processes.

In forest, approaches used are:

- ✓ Participatory approach
- ✓ Top down approach

## Topic 6: Participatory approaches

- ✓ Participatory approach (Bottom up approach)

It is an approach involving the voluntary participation of farmers or farmers groups in the selection of techniques to disseminate and in the evaluation of the results of agricultural demonstration.

Participatory approach is designed to enable all people to benefits from development. In addition, there must be collaboration between various actors: agricultural research, extension worker and farmers.

It is the approach used during the colonial era and in the beginning of independence and is still used by Private organizations.

The concern of this approach is to increase the participation of the population particularly for developing confidence in it and local initiative. Its main objectives are the improvement of health.

It is 2 ways information flow system in this direction as shown below:

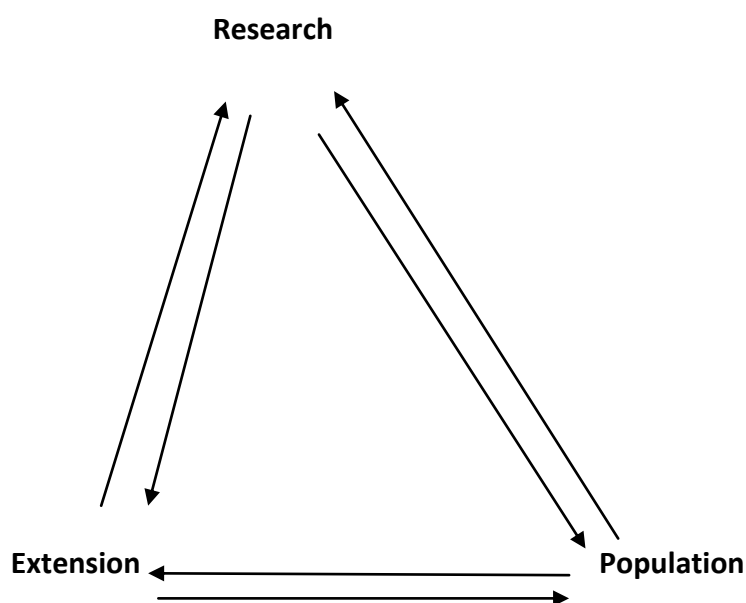


Figure 4: Shows the participatory approach agents

Extension worker must receive techniques/ innovation from research that meet the requirement of the population that are derived from the ideas generated by farmers themselves as shown in the diagram.

It should be noted that at any time there is feedback from farmers themselves, from extension worker so that the research knows what to change in the proposed innovation.

Since it is virtually impossible for the extension worker and the researcher to reach all farmers at the same time, the extension workers and the researcher have counterparts among the farming community. The later are elected by the people. Thus, it is these elected farmers or rural extension agents to whom the researcher or extension worker speaks and the role of the elected representative is to transmit to other farmers the information he/she received.

Using this approach, both farmers and extension worker are active, both are involved. The extension role is to facilitate rather than to teach farmers.

This approach is effective and important for effective implementation of forestry extension program.

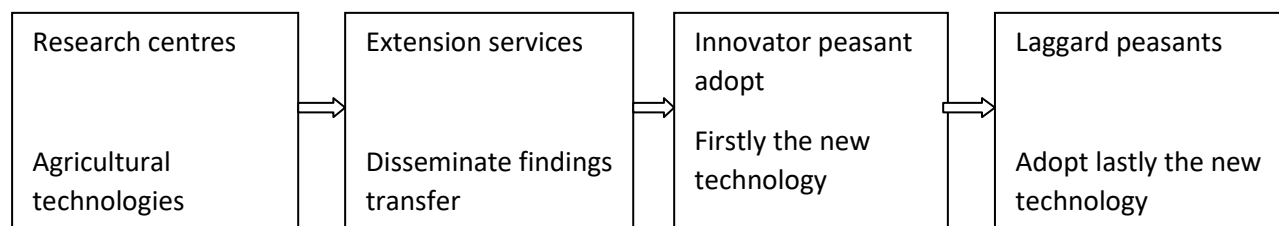
## **Topic 7: Top down approaches**

It is a simply one way information delivery system that reinforces the hierarchical relationship between extension agent and the client. This approach is also known as blue print or pre-determined approach. Since this is a government program. There is a problem that village's people may not fully understand.

- ✓ It also foresters and encourages superior attitudes on the part of extension agent.
- ✓ Extension agent teaches farmers are taught
- ✓ Extension agent knows everything, farmers know nothing.
- ✓ Extension agent thinks, farmers taught
- ✓ Extension agent is active, farmers are passive
- ✓ Extension agent choose the program content
- ✓ Extension agent assumes teaching leads to learning.

✚ Transfer of technology (ToT): It is the oldest of all systems. In Rwanda, it was the one technique of transfer of technology. This one was founded on a very simple principle confirming that peasant agriculturist was ignorant of the modern methods of agriculture and that therefore it was only the agricultural extension agent who was supposed to know all agricultural techniques.

Already by way in turn of a sort of transmission chain in irreversible communication that would be linear. In this system, the message to popularize must necessary come from the research centres and arrive to the peasant and user via the recognized population agent.



**Figure 5:** Illustrate the function of the transfer of technology system

## Topic 8: Other used approaches

### ✓ Training and visit ( T&V)

It is also called BENOR .This is also a participatory approach but the organization of agricultural services has been completely revised and refined to ensure in principle a much more professional service to farmers. This approach is the currently used by Rwandan local Government.

With this approach, all extension officers perform functions that complement and support the activities of all staff at another level. It fixes to extension worker a clear working framework by providing very regularly the elements of practical and theoretical information that will form the content of his/her interventions with farmers and in establishing his work schedule that can be broken into 14 days detail as follow:

- 📅 8 days of field visits
- 📅 1 day for training
- 📅 1 day devoted to the meeting with team leader
- 📅 2 days for administration or for additional or remedial visits
- 📅 2 days for rest

Field visits are systematic and regular. Each village can meet the extension worker on a specific day or fortnight.

Training received by Extension agent one day has 2 objectives:

- 📅 To present guidelines regarding in the program of the fortnight to come.
- 📅 To share the problems encountered on the field in order to find a solution to them or submit them to the researcher

This training is provided by a specialist who participate himself/herself each month, in a two day meeting with the service of research during which he/ she collects all the elements to transmit to extension workers and communicates to researchers problems encountered in the field by farmers. Thus, systematic training of extension workers establishes communication between research, extension and rural areas.

The approach also brings the extension officer to work with some farmers that he/she specifically follow up and who will in turn; disseminate the new technologies in rural areas. Those farmers are known as contact farmers will be chosen by the extension officer and they well represent all the farmers 'categories in the intervention area.

The approach also organizes a close contact communication between research and extension in one direction as well as in another.

This communication mainly takes place through meeting and training days but also through field visits specifically on trials performed in the farms.

#### ✓ **The product approach**

It is an approach to improve the production of a clearly defined crop usually cash crop known as industrial crop. It aims at disseminating very difficult and neatly precise agricultural techniques.

 Forest extension systems which can be used are:

- ❖ Transfer of technology (ToT)
- ❖ Farmer-led extension system which has the model of Farmer to Farmer (F to F): This would mean simply the extension systems between farmers themselves and Farmer field school (FFS): Farmers use to do the survey where they discover by themselves the interactions existing between the crops, predators, the soil and the water into field. All things are done directly into the farm or the field in the natural conditions like for the F to F.
- ❖ Training and visit (T&V) extension system
- ❖ Farming systems research and extension (FSR/E)
- ❖ The contract extension system
- ❖ Integrated crop-based cluster extension system

## Topic 9: Working methodology

- ✓ **Brainstorming:** Is a methodology for developing creative solutions to problems. It works by focusing on a problem and their deliberately coming up with as many deliberately unusual solutions as possible and by pushing the ideas as far as possible. No discussion, all suggestions are taken aboard. Random grouping in groups is of 4-6 farmers.
- ✓ **Demonstration:** Is a methodology which has the aim of showing the farmers how a specific activity is applied on the field. It should be designated to demonstrate a preference and a single technique. This type is one of methodology used in teaching and it is advisable to define the objective of the activity to perform. It is a very good method because farmers can practice, see, hear and discuss during the activity. Extension officer speaks to many farmers at one. There is an exchange of experience and information among the groups. Extensionist also can check whether the message was understood.
- ✓ **Group discussion:** Groups of farmers are actively involved in talking and listening to each other about an issue of a mutual concern. An extension worker guides the situation. All farmers within their groups must participate actively. In small group discussions, extensionist informs farmers about mode of feedback. After, summarizes the main points.
- ✓ **Learning by doing:** This methodology is more specifically defined as learning through reflection on doing. Farmers engage with trainees in direct experience and focused reflection in order to increase knowledge, develop skills and clarify attitudes and values. It is a process of learning through experience and is more defined as learning through reflection on doing.

### LO 4.3 – Assess the innovation understanding and adoption

Innovation: Those are new ideas, technologies coming in agriculture or forest in order to improve and increase the production or product quality.

Adoption is an acceptance or start using or put into practice the new ideas or technology or innovation.

It is done by trying to monitor agriculture forest results and concentrates on directly monitoring the provision and response to extension services.

During assessment innovation the following procedures should be done: Organize the questions related to the program, determine the time and duration, Determine the number of farmer, and classify the farmers according to the level of their performance.



## Topic 1: Evaluation methods

- ✓ Definition: Evaluation is the analysis of the effectiveness of an activity which would cause a judgement as in the progress related to the purposes of a company. Evaluation is made up in the conduction of a study of effectiveness of plans.
- ✓ There is an important difference between monitoring and evaluation. Monitoring and evaluation are two states of analysis from the point of view of the progress related with purpose of a firm or a venture. Monitoring is the systematic analysis of information made from time to time to become familiar with the changes over a particular period.
- ✓ The purpose of evaluation is in fact to get the progress of accounting as near as possible to perfection. It is all about making the best use of the available funds, methods to stop, the chances of errors, the assessment of the effectiveness of the new techniques used in the accomplishment of plans.

### ✓ Types of evaluation

There are many different types of evaluations depending on the object being evaluated and the purpose of the evaluation. Perhaps the most important basic distinction in evaluation types is that between formative and summative evaluation.

#### Formative evaluation: Includes several evaluation types:

- ❖ Needs assessment determines who needs the program, how great the need is and what might work to meet the need.
- ❖ Evaluability assessment: determines whether an evaluation is feasible and how stakeholders can help shape its useful
- ❖ Structured conceptualization: helps stakeholders define the program or technology, the target population and the possible outcomes
- ❖ Implementation evaluation: monitors the fidelity of the program or technology delivery
- ❖ Process evaluation: investigates the process of delivering the program or technology including alternative delivery procedures.

#### Summative evaluation: It can also be subdivided:

- ❖ Outcome evaluation: Investigate whether the program or technology caused demonstrable effects on specifically defined target outcomes.
- ❖ Impact evaluation: Is broader and assesses the overall or net effects intended or unintended of the program or technology as a whole.
- ❖ Cost-effectiveness and cost-benefits analysis: address questions of efficiency by standardizing outcomes in terms of their dollars costs and values.

- ❖ Secondary analysis: Re-examines existing data to address new questions or use methods not previously employed.
- ❖ Meta-analysis: Integrates the outcomes estimates from multiple studies to arrive at an overall or summary judgement on an evaluation question.
- ✓ Evaluation is carried out by using the following methods:
  - ✚ Questionnaire
  - ✚ Field observation
  - ✚ Interview
  - ✚ Group discussion

## Topic 2: Identification of criteria of evaluation

- ✓ Indicator set before: Are clues, signs or markers that measure one aspect of a program and show how close a program is to its desired path and outcomes. Indicators are realistic and measurable criteria of project progress. They should be defined before the project starts and to monitor or evaluate whether a project does what it said it would do. Indicator is a tool that helps to know whether the work is making a difference. Indicators usually describe observable changes or events which relate to the project intervention.  
 They provide the evidence that something has happened whether an output delivered an immediate effect occurred or a long term change observed.  
 Indicators should be set according to the SMART criteria. Specific to the objective, Measurable either quantitatively or qualitatively, Achievable or available at an acceptance cost, Relevant to the information needs of decision-makers and time bound so that users know when to expect the objective or target to be achieved.
- ✓ Indicators can be classified as follows:
  - ✚ Quantitative indicator (Output indicators) that tell if the activities and actions planned are actually happening as intended
  - ✚ Qualitative indicator (Outcomes/ Performance indicators) are indicators of changes and based on opinions, feelings or viewpoints rather than hard facts or numbers.
- ✓ Application of the session lent
- ✓ Attitudes change of the participants

### Topic 3: Innovation adoption categories and their characteristics

#### ✓ **Innovator:**

- ✚ These individuals adopt new technologies or ideas simply because they are new
- ✚ Innovator tend to take risks more readily
- ✚ Are the most venture some youngest in age
- ✚ They are first individuals to adopt an innovation
- ✚ They have highest social class and great financial, very social and have closest contact to scientific sources and interaction with other innovators

#### ✓ **Laggards:**

- ✚ This group is called also phobics
- ✚ Individuals are likely to be the oldest and most traditional
- ✚ Is the last group eventually adopt new technologies
- ✚ This group is very slow to adopt new ideas or technologies
- ✚ They tend to adopt only when they are forced
- ✚ They have too little or no opinion leadership
- ✚ They are advanced in age
- ✚ They focus on traditions likely to have lowest social status
- ✚ They are oldest of all other adopters

#### ✓ **Early majority:**

- ✚ If an idea or other innovation or technology enters, this group tend to be widely adopted before long.
- ✚ This group makes decisions based on utility and practical benefits over coolness
- ✚ They adopt an innovation after carrying degree of time
- ✚ Is significantly longer than the innovators and early adopters.
- ✚ They tend to slower in adoption process
- ✚ They have above average socio status, contact with early adopters

#### ✓ **Late majority:**

- ✚ If idea or other innovation enters this group tends to be widely adopted later.
- ✚ They share some traits with the early majority but is more cautious before committing needing more efforts, more hand holding as they adopt
- ✚ Individuals in this group adopt after the average member of the society
- ✚ They have below average social status, very little financial
- ✚ They have very little opinion leadership
- ✚ They are in contact with other in late majority and early majority.

✓ **Early adopters:**

- ✚ They are the first farmers to adopt new product or technology before the majority of the population does
- ✚ They are often called light house customers because they serve as a beacon of light for the rest of the population to follow which will take the technology or product mainstream
- ✚ This group tend to create opinions
- ✚ They are not unlike innovators in how quickly they take new technologies and ideas but are more concerned about their reputation

The model indicates that the first group of farmers to use a new technology is called innovators, followed by early adopters, next comes the early majority and the late majority and the last group to eventually adopt a new technology is called laggards.

## **LO 4.4 – Report the work**

### **Topic 1: Structure of a report**

- ✓ Definition: A report is a presentation of the statement of farmer level about achievement from the extension services and extensionist show work schedules implementation.  
Summaries of report may be delivered orally while complete reports are always given in the form of written documents.
- ✓ Evaluation report writing is a written document that describes how you monitored and evaluated your program. It allows you to describe the what, the how and the why it matters for your program and use evaluation results for program improvement and decision making. It presents the findings, conclusions and recommendations from a particular evaluation, including recommendations for how evaluation results can be used to guide program improvement and decision making.
- ✓ A final report is needed to relay information from evaluation to program staff, stakeholders and funders to support program improvement and decision making. This is only one communication method for conveying evaluation results. It is useful to have on transparent document with information about stakeholders, the program, the evaluation design, activities, results and recommendations.
- ✓ A report contains 3 parts namely:

### **Introduction:**

It has a problem statement

It has attention grabber which capture audience's attention

It contains the purpose of a report, research

It shows background to familiarize the reader with the topic

Mention the relevance of the work done

Highlight the way in which it is making new contribution to the field

Describe how research/ activities will be conducted

Indicate main points/ parts of the research.

### **Body development:**

Give detail of your report

Report key findings, outcomes/ results

Provide evidence supporting ideas of a conclusion

Discussion, interpretation and analysis of the results or organization of development

The body is divided into chapters, subchapters, topics and paragraph.

Methodology and material

### **Conclusion and recommendations**

It should be independent of the main body

This section will be read by prospective reader first

Recapitulate the main findings and contribution of the results research

Briefly discussion your results and provide answers, solutions to the problems statement

Conclude with recommendations or suggestion for further improvement or other research.

## **Topic 2: Characteristics of a report**

A good report must have the following characteristics: clear, precise, concise.

- ✓ **Clear:** A good report is easy to understand, or easy to see or hear.
- ✓ **Precise:** A good report must be exact and accurate in form, time, detail, or description.
- ✓ **Concise:** A good report should be short and clear, expressing what needs to be said without unnecessary words.

### Topic 3: Report submission methods

It is a way of presenting a report to the extension staff or leaders, stakeholders and funders. An extension worker must use different methods such as:

- ✓ **Hard copy report:** Is a report that is written manually by using a hand and printed for being available and given with hands.
- ✓ **Soft copy report:** Is a report that is given by using internet communication, e-mail when using electronic machines, Sms by using cell phones and.
- ✓ **Oral report:** Is a report given orally by using spoken or verbal words and expression vis à vis in the public.

### Topic 4: Reporting frequency

During a prescribed period of time, the report should be done at different time, some are done day by day, during a week, during a month or during annual period of time.

- ✓ **Daily report:** This is a report sheet filled by extension worker every day in which he/she writes a brief description of all activities performed per day the tools, machines, equipment and methodology used to perform the activities and numbers of hours per day taken to perform all those activities.
- ✓ **Weekly report:** Is a weekly sheet as development of daily report sheet filled by an extension worker where he/she mentions a brief description of a whole week activities performed, tools, machinery, equipment and methodology used to perform that activity and numbers of hours taken to perform all those activities.
- ✓ **Monthly report:** Is a monthly sheet filled by extensionist worker where he/she puts a brief description of a whole month activities performed, tools, machines and methodology used and then number of hours taken.
- ✓ **Quarterly report:** Is the report done by extension worker after each  $\frac{1}{4}$  of year means ( every 3 months) where as he/she mentions all activities performed, tools, machinery and methodology used and then numbers of hours taken.
- ✓ **Annual report:** Is a report done during a one year in which extensionist fills the sheet a brief description of a whole year activities performed, tools, machines, methodology and number of hours used to perform those activities.

## Reference(s)

- Ahmed, M. R.(1991). Retrieved 12 9, 2020, from [www.fao.org/3/XII/0346\\_A1.htm/](http://www.fao.org/3/XII/0346_A1.htm/):  
[https://www.fao.org/3/XII/0346\\_A1.htm/](https://www.fao.org/3/XII/0346_A1.htm/)
- Ahmed, M., R. (1991). *Planning and designing social forestry project*. FAO,FTPP.
- Anuj Kumar, Sendhil Rand Satyavir Singh. (2018). *Modern extension strategies to disseminate technological innovation and interventions ata farmers field*. Icar-Indian: Karnal 132001 (Haryana).
- APEFE. (2010). *Agricultural extension extension Senior 6, Agronomy*. Kigali, Rwanda: APEFE.
- Burtono.E.Swanson, Robert P.Bentz, Andrew.J.Sfranko. (1997). Retrieved 12 8, 2020, from [kp.go.pk/Uploads/2016/08/improving\\_agricultural\\_extension\\_FAO1\\_PDF](http://kp.go.pk/Uploads/2016/08/improving_agricultural_extension_FAO1_PDF):  
[https://www.kp.go.pk/uploads/2016/08/improving\\_agricultural\\_extension\\_FAO1.pdf](https://www.kp.go.pk/uploads/2016/08/improving_agricultural_extension_FAO1.pdf)
- FAO. (1978). *Forestry for local community development* . Rome, Italy: FAO.
- FAO. (1982). *Forestry extension methods, volume 1 and 2 GCP/LES/026/SWE. Forestry training and development*. Maseru, Lesotho: Fao.
- FAO. (1986). *Forestry extension organization*. Rome, Italy: FAO.
- FAO. (1986). *Forestry extension organization, FAO Foretry paper No66*, . Rome, Italy.: FAO.
- M.Rose, T. (2014). *Agricultural extension*. Kigali,Rwanda: Workforce Development Authority.
- Roling, N. (1988). *Extension science, information systems in agricultural development*. Cambridge University Press.
- Smith, L. (2000). *Stakeholder analysis: a capital practice of successfull projects*. Houston,T.X: Project management institute Annual seminar and symposium.