Agricultural TVET College

Small Scale Irrigation Development

Level I

Model TTLM

Learning Guide #08

Unit of Competence: Develop understanding of data recording in irrigation work

Module Title: Developing understanding of data recording in irrigation work

LG Code: AGR SSI1 M08 Lo1-Lo3

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Nominal duration: 20 Hours

Instruction Sheet	Learning Guide 08

This learning guide is developed to provide trainees the necessary information regarding the following content coverage and topic:

- **Record and collect data**
- **Analyze data**
- **Identify and prioritize recorded needs/problems**

This guide will assist trainees to attain the learning outcome stated in the curriculum guide. Specifically, upon completion of this Learning Guide, trainees will be able to:

- Select sample techniques according to target group/population status
- Collect data through recording from pre-set target groups
- Organize collected and recorded data
- Interpreting and analyzing data
- List out needs from collected data
- Prioritize needs on the basis of community demand

Learning Activities

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the "Information Sheets"
3. Accomplish the "Self-check" questions
4. If you earned a satisfactory evaluation, you will proceed to the next "Information Sheet." However, if your rating is unsatisfactory, see your teacher for further instructions.
5. Submit your accomplished Self-check.

InformationSheet-1	Record and collect data

Introduction

In our routine life we come across several information through print, audio and visual media, social gatherings and discussions. But have you ever thought how data for this information is collected, processed and analyzed? The collection of data refers to a plan for gathering data, information from field situations. A set of procedure is followed to get the desired data/ information from the field work in irrigation, to process and analyze the facts in a logical and scientific manner.

1. **Steps in data collection**

Broadly speaking there are three major steps in data collection viz.

1. One can ask people questions related to the problem being investigated.
2. One can make observations related to places, people and organizations their products or outcomes.
3. One can utilize existing records or data already gathered by others for the purpose.

The first two steps relate to the collection of **primary data** while the third step relates to the collection of **secondary data**. The information/data collected by a person directly is known as primary data while records or data collected from offices/institutions is known as secondary data.

A. **Steps in Primary Data Collection**:

Collection of primary data involves the following steps:

1. Making ones ready both mentally as well as physically for collecting primary data from field situations.
2. Keeping a field book/record book or diary for writing relevant information, doing field sketching or writing records of the occurrence of phenomenon at specific time intervals.
3. Administering questionnaire schedule to the target groups of area people across sampled sites.
4. Verifying the facts through cross checks in the answers and ground realties.
5. Integrating the observations, responses and recorded facts in a systematic and logical framework.

B. Steps in Secondary Data Collection: The collection of secondary data involves the following steps:

1. Knowledge about the offices/institutes etc. keeping the record of relevant data is of prime importance to obtain the secondary data/information.
2. Get an official letter containing your requirements of data and purpose of data collection from your Principal/Head of the Institute? Your identity card is also an essential requirement to get an entry in the offices.
3. Keep a note book/record file to transfer data for the purpose. It could also be done with the help of photo copying systems.
4. The secondary data, thus, collected forms the basis for tabulation and processing as per need.

C. Identification of Issues: It is very important to identify clearly the issues that are going to be assessed.

Depending upon the availability of time, cost, manpower and tools, a frame work of issues to be covered need to be developed. In case of local area planning the following issues need to be considered.

1. Issues related to environmental conditions like environmental degradation, quality of human life etc.
2. Social issues like people's perception, literacy status, health hazards, incidence of crime etc.
3. Economic issues like employment, expenditure pattern, flow of goods and commodities etc.
4. Population study for agriculture, industry etc.
5. Land use study for agriculture, industry etc.
6. Facilities and amenities available for social and economic development.
7. Problems related to growth of economy such as irrigation, means of transportation, availability of power etc.
8. Focal theme of planning like provision of basic amenities in slum areas, pollution control, clean environment in an industrial area.

2. **Tools and techniques of data collection**

For data collection we make use of certain tools and follow specific techniques. The tools that help in data collection are as under:

- Observing the phenomenon and recording the details,
- Inquiring about the facts through questionnaires/schedules
- Making measurements.
- Conducting tests.
- Recording the events.

Now let us study some of these tools and techniques of data collection.

A. Questionnaires:

The questionnaires or interview schedules are the set of questions framed for the specific purpose of data collection through field work. The questionnaire serves two purposes. First, it translates the objectives of the field work into specific questions which help in the collection of necessary data. The data collected through the responses of the questions forms the basis of understanding the problem or explore the idea set by the objective. In order to achieve these objectives, each question must communicate to the respondent the idea or group of ideas required by the objective and obtain a response which can be analyzed to fulfill the objectives. The question must perform these functions with minimum distortion of the response it deals. In asking a question to the respondents, we assume that he possesses adequate knowledge, opinion or attitude. Each question should, therefore, be constructed so as to elicit a response which accurately and completely reflects each respondent's position.

The second purpose of questionnaire is to assist interviewer in motivating the respondent to communicate the required information. There are many factors which determine the respondent's willingness to engage in an interview. The questionnaire itself does much to determine the nature of interviewer-respondent relationship. Thus, the quantity and quality of data collected depends largely on the nature of questionnaire.

(a) Contents of Questionnaire:

The following two types of information should from the contents of questionnaire:

(i) Identity or location specific contents

(ii) Respondent centered contents

(b) Form of Questionnaire:

The form of questionnaire depends upon some of the factors such as willingness of the respondents, usefulness of the information and its level, language, sequence of questions, single idea etc.

(c) The Interview

The process of conducting interviews starts soon after the formulation of questionnaire is complete. The investigator should have a letter of introduction to explain about himself in the field. The letter of introduction must have a note that the information so collected is going to be used for the purposes of presentations and educational use only. The information will remain anonymous completely. While conducting interviews, we should help in removing the difficulties of the respondents without giving any clue as to the answer required. As far as possible we are not supposed to make any responses or show any expressions to the answers. Finally we should pay regards and express thanks to the respondents for their co-operation.

B. The Schedules

The schedules are the timed plan for a survey. It reflects time specific recording of the phenomena like traffic survey, consumer behavior survey, precipitation pattern etc. The investigator must record the occurrence of a phenomenon over a specific time interval. The time is an important reference of analysis. It could be in convenient units of hours, minutes or seconds depending upon the frequency of occurrences. Similarly, a phenomenon is more often associated with several elements. Hence, the record book needs to have further sub divisions both on X as well as on Y axis.

1. What phenomenon to be selected and recorded in order to obtain the required information?
2. Under what conditions are observations to be made? How is the observational situation structured?
3. Can a score be assigned to the observation and what are the characteristics of that score?
4. How stable are the observations? Can the same results be obtained under the same conditions?
5. Whether the phenomenon observed has functional unity with same process?

C. Rating Scales

By the term rating scale, we mean a scale with a set of points, which describe varying degrees of dimension being observed. Rating scales are most often used in either of two ways, 1) to record the pattern at frequent intervals, or 2) to rate the entire event after it has ended. Thus, rating scales, which contain a variety of items at each point on the scale, are more efficient since they can provide more data per observer, more dimensions per unit of area and time. Investigator observes a number of acts throughout the situation, integrates them in his mind, and makes a judgment as to which point on a number of scales best described his interpretation of the varied behavior. The following examples offer an idea of rating scales.

Temperature Conditions:

Very Cold	Cold	Cool	Moderately Warm	Hot	Very Hot
0	1	2	3	4	5

Development Level:

Under Developed	VeryLow Level	Low Level	Medium Level	High Level	Very High Level
0	1	2	3	4	5

D. Field Sketches

Making of field sketches on the spot is an essential component of field survey in geography. These are simple, rough drawings or design done rapidly to depict the ground truth on a piece of paper. Geographical facts like structure or form of physical landscape, location and site, mobility, intensity of interactions, patterns of level use, distance and directions and

interdependence of certain natural or cultural objects can be depicted symbolically in the form of field sketches.

E. Photographs

Camera is one of the important equipments that is needed during the course of a field work and data collection. It is needed for taking photographs of typical features. Photographs present the view of a landscape in its totality, activity in operation and events in their occurrences. Photographs provide comprehensive data bases for analysis and interpretation. Certain aspects that need more time to record such as conditions in a slum locality, variety of landscapes, plant species, and office and factory systems can be photographed and the output can be used for the explanations and analysis. Photographs are used to supplement the results.

F. Methods of Administering the Questionnaires and Survey Schedules

The questionnaires are the set of questions framed for specific purpose of field work. Before designing the questions the purpose of specific problem is divided into various steps and phases. After this logical sequence of questions is to be developed so that desired response can be obtained. The coding of questions (each question to be given a numerical code) is another important dimension required for the transfer of data/information to computers. The whole questionnaires are divided into schedules sets like household schedule, amenities and facilities schedule, function or activity schedule. Thus the questionnaires are a set of schedules having purpose specific questions. Schedule of time is another dimension worked out to complete the field work in given period.

Normally, the administration of questionnaire will follow a sequence of procedures in the manner given below:

1. **Building Rapport**: It refers to the atmosphere of entire relationship between respondent and interviewer. It would be necessary for him to establish a deeper kind of personal relationship with the respondent.

2. Asking the Questions: The interviewer's job of asking questions from the questionnaire is through the use of carefully worded questions transmitted to the respondent in verbatim which will help in achieving most of the standardization in the interview. The major aim of putting questions to a variety of respondents is to have complete and clear response about the point of investigation.'

3. Use of the field sketches and sketch maps: The field sketches are additional supports to the questionnaires in the collection of primary data. Field sketches supplement the set of information by producing a rough image of physical as well as cultural landscapes. These are the free hand

pencil or pen drawn images on the field diary. These sketches help remembering and recollection of field relations. They also substantiate the facts as visual presentations.

1.1. Selecting sampling techniques according to target group/population status

Selection of Samples and Sample Size

A sample is a part of a larger group or area selected for obtaining information about the whole group or area known as the universe of the study. The part of the whole is called sample and is used to ascertain the characteristics of the universe of the study. While choosing a sample, the population is assumed to be composed of individual area units or members of the group. Some of these units or members of the population selected for detailed study are called the samples. When the entire universe is taken into consideration for the study, it is known as census survey. Examples are population census, agricultural census and so on.

1. **Identification of Samples**: The identification of samples is the first task while conducting the field survey. The selection of sample should be such that it reflects the characteristics of the whole. The sample should not be identical as it leads to error.

2. **Sampling Techniques**: Samples are selected to avoid unnecessary large expenditures likely to be incurred on the total survey of all the units of area of study. Moreover, a sample study can be completed in a lesser time period compared to the study of universe or population. The level of accuracy also increases when we study smaller area units and vice versa in case of the universe. The measures of assessments, estimates and projections can be better used for the purpose of planning, execution and diffusion studies. Some of the popular sampling techniques are discussed here.

(a) **Systematic Sampling**: The items selected from the population are chosen in a regular way. Such a procedure of sampling is called a systematic sampling. For example selection of samples in a multiple of 8(8th 16th, 24th etc.), 10 (10th, 20th, 30th etc.) or any other number so decided.

(b) **Random Sampling**: The selection of samples, in random sampling, depends upon the chance as universe presents homogenous conditions throughout. There are two types of random sampling.

(i) **Simple Random Sampling**: The procedure of sampling in which each unit of target area has equal chance of being included as the sample is known as simple random sampling. For example in a survey on consumer behavior each consumer has an equal chance for being selected as a sample.

(ii) **Stratified Random Sampling**: This type of sampling procedure is used when considerable heterogeneity is present in the distribution. The selection of samples in such a situation is based on the division of the universe/area of study into homogeneous subgroups or strata. Certain aspects of study present stratified character like soil (properties of soil both physical & chemical properties etc.), distribution uniformity. Random samples are selected from each sub group based on their relative significance in the universe/target area.

3. **Sample Size**: There are two basic requirements for the sample to fulfill. A sample must be representative and adequate. The sample is said to be representative when it reflects the various patterns and sub classes of the area of the study. Similarly, a sample is adequate if it provides very precise result to the investigator. It is important to note that larger is the sample size, greater is the accuracy. Usually a small sample is sufficient if the phenomenon studied is fairly homogeneous which very rarely occurs. Normally, for a field survey sample size chosen is about 5 to 10 percent of the total units of the universe/area.

1.2. Collecting data through recording from pre-set target groups

Collection of Information

Both the tools of registration and recording help us in the collection of primary data. With the help of these tools, we try to transfer the facts from field into data and tables. In this process of collection, there is obviously the loss of some information. Nevertheless, a good deal of satisfactory information is collected and utilized for the purpose of analysis and interpretation. The collection of information could be a routine as well as specific purpose exercise. The routine data collection could relate to daily rainfall, pan evaporation, flow measurement etc. Similarly, recording of weather elements like temperature, air pressure, precipitation, direction of winds, relative humidity, sunshine hour etc. is a routine data collection. There are many other examples of daily data collection. Based on the daily information or facts, seasonal trends and annual averages are worked out. The purpose specific data is collected at one point of time only. There are also data to be collected at regular interval of time such as soil moisture measurement, distribution uniformity of pressurized irrigation system, infiltration measurement, soil physical and chemical properties etc.

Processing of data

The processing of data/information is an essential dimension of stream lining the facts and writing of a field report. A separate account of processing is given here.

(A) **Processing of primary data**: The primary data collected from the field remains in the raw form of statements, digits and qualitative terms. The raw data contains error, omissions and inconsistencies. It requires corrections after careful scrutinizing the completed questionnaires. The following steps are involved in the processing of primary data.

(i) **Editing of data**: The editing of data can be done at two stages: field and post-field editing. The field editing is a review of reporting by the investigator for completing what has been written in an abbreviated form during interviewing the respondent.

The post-field editing is carried out when field survey is completed and all the forms of schedule have been collected together. This type of editing requires review of all forms thoroughly.

(ii) **The coding of data**: To keep the response with in limited alternatives, we need to assign some alphabetical or numerical symbols or both to the answers. The alternatives must be

mutually exclusive i.e. defined in one concept or term only. This form of processing is known as coding. For example in a question of educational qualifications alternative choices given are: Uneducated; Below Matriculation; Matriculation & above but below Graduate; Graduate & above; Technical Diploma; Technical Degree.

The alphabetical codes assigned to these alternatives could be A, B, C, D, E and F. Similarly, numerical codes to these alternatives could be 1, 2, 3, 4 and 5 respectively. It is necessary for the efficient analysis. Though coding exercise is a part of the formulation of questionnaire yet responses to questions need to be coded and made final at the processing stage. This simplifies the transfer of data from questionnaires to the master chart. It is a two dimensional chart in which observations are entered on one axis (X) and details of the responses on the other axis (Y). The calculation becomes easier and quicker if the details are coded and entered in the master chart or fed in the computers.

(iii) **Organization of Data**: The data information collected through different sources should be organized. The first task in this regard is to develop a master chart. For example in a local area survey, we record individual households in rows and the details of population, function, facilities and amenities etc. in columns. Thus a large chart is prepared that contains, practically, all relevant information/data. Finally the total of rows and columns are cross-checked. The information arranged in an ascending order is known as the array of data. The set of information related to specific entity is called the field. The following illustration demonstrates the way data is organized.

Details / Households	Population			Functions				Facilities		
	P	M	F	Agri	Ind	Trade	Service	T.V.	Phone	Vehicle
01	20	12	08	5	-	1	12	1	1	1 Scooter
02	17	09	08	6	-	1	1	1	1	1 Scooter
03	9	04	05	-	-	2	1	1	2	1 Car and 1 Scooter
04	12	06	06		1		2	1	1	1 Scooter
05	13	07	06	2	-	-	2	1	-	1 Scooter

(iv) Classification of data: A huge volume of raw data collected through field survey needs to be grouped for similar details of individual responses. The process of organizing data into groups and classes on the basis of certain characteristics is known as the classification of data. Classification helps in making comparisons among the categories of observations. It can be either according to numerical characteristics or according to attributes. The numerical characteristics are classified on the basis of class intervals. For example monthly income up to Rs.2000 may form its group and the respondents reporting income in the range may form its frequency. Similarly, further group can also be made like income group Rs.2000 to Rs.3000 and so on. The number of items entered against each class is known as the frequency of the class. Every class has a lower and an upper limit. The difference between the upper and lower limits is known as the range of the class. The class intervals are mostly kept equal. Sometimes when the

range of the data is too large class intervals are not kept equal, instead they are based on the perceptible gaps in the array of the data. For example settlements having less than 2000 population can be grouped as below 200 population 200-500 population, 500-1000 population and so on. In this group as class intervals are unequal.

The data is also classified on the following bases.

1. Descriptive characteristics-example land holding, sex, caste and so on.
2. Time, situation and area specific characteristics.
3. Nature of data as continuous or discrete.

Self-Check 1	**Written Test**

Name: _____ Date: _____

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. Describe the different sampling techniques (5 points)
2. What are the types of data to be collected? (5)
3. Describe data processing ?(5point)

Note: **Satisfactory rating - 15 points and above** **Unsatisfactory - below 15 points**

You can ask you teacher for the copy of the correct answers.

InformationSheet-2	Analyze data

2.1 Organizing collected and recorded data.

What do we mean by collecting data?

Essentially, collecting data means putting your design for collecting information into operation. You've decided how you're going to get information whether by direct observation, interviews, surveys, experiments and testing, or other methods and now you and/or other observers have to implement your plan. There's a bit more to collecting data, however. If you are conducting observations, for example, you'll have to define what you're observing and arrange to make observations at the right times, so you actually observe what you need to. You'll have to record the observations in appropriate ways and organize them so they're optimally useful.

Organizing data

Depending on the scope of your evaluation and your available resources or information, you may need to organize the data before you can begin analysis. A database or spreadsheet can be helpful in organizing your data. Readily available computer programs, such as Excel may be useful. Excel tends to be easily accessible for most people who have access to computer with Microsoft office products.

Recording and organizing data may take different forms, depending on the kind of information you're collecting. The way you collect your data should relate to how you're planning to analyze and use it. Regardless of what method you decide to use, recording should be done concurrent with data collection if possible, or soon afterwards, so that nothing gets lost and memory doesn't fade.

Organize the data you've collected

How you do this depends on what you're planning to do with it, and on what you're interested in**.**

- *Enter any necessary data into the computer*. This may mean simply typing comments, descriptions, etc., into a word processing program, or entering various kinds of information (possibly including audio and video) into a database, spreadsheet, a GIS (Geographic Information Systems) program, or some other type of software or file.
- *Transcribe any audio- or videotapes*. This makes them easier to work with and copy, and allows the opportunity to clarify any hard-to-understand passages of speech.
- *Score any tests and record the scores appropriately.*
- *Sort your information in ways appropriate to your interest*. This may include sorting by category of observation, by event, by place, by individual, by group, by the time of observation, or by a combination or some other standard.

- *When possible, necessary, and appropriate, transform qualitative into quantitative data*. This might involve, for example, counting the number of times specific issues were mentioned in interviews, or how often certain behaviors were observed.

2.2. Analyzing and interpreting statistical data.

Once data are collected, the next step is to analyze the data. A plan for analyzing your data should be developed well before it is time to conduct analysis. The best time to develop your analysis plan is when you are first identifying your key evaluation questions and determining how you will collect the needed information. It's important to match the analysis strategy to the type of information that you have and the kinds of evaluation questions you are trying to answer.

What do we mean by analyzing data?

Analyzing information involves examining it in ways that reveal the relationships, patterns, trends, etc. that can be found within it. That may mean subjecting it to statistical operations that can tell you not only what kinds of relationships seem to exist among variables, but also to what level you can trust the answers you're getting. It may mean comparing your information to that from other groups (a control or comparison group, statewide figures, etc.), to help draw some conclusions from the data. The point, in terms of your evaluation, is to get an accurate assessment in order to better understand your work and its effects on those you're concerned with, or in order to better understand the overall situation.

There are two kinds of data analyzing you're to be working with, although not all evaluations will necessarily include both.

Analyzing quantitative data

Quantitative data is information you collect in numerical form, such as rating scales or documented frequency of specific behaviors. For example, typically, close-ended survey questions are coded into numbers so they can be analyzed quantitatively. While statistical analysis of quantitative information can be quite complex, some relatively simple techniques can provide useful information.

Descriptive statistics can help summarize your data and identify key findings while inferential analyses can help you draw conclusions about your results. Descriptive analysis is used to reduce your raw data down to an understandable level. Common methods include:

- *Frequency distribution*: tables or charts that show how many of your evaluation participants fall into various categories of interest.
- *Central tendency*: the number that best represents the "typical score," such as the mode, median and mean.
- *Variability*: amount of variation or disagreement in your results. Common measures of variability include range (difference between the highest and lowest scores) and standard

deviation (a more complicated calculation based on a comparison of each score to the average).

Mean median, mode, and range

The mean, median and mode are measures of central tendency, while the range shows how your responses vary from one end of the spectrum to the other. Typically, there will not be a need to figure these out by hand, since database programs such as Excel soft ware already have functions to calculate them.

The "mean" is simply the "average." It is calculated by adding up all of the numbers in your data and dividing by the total number of numbers.

Example

Dataset: 1, 9, 5, 6, 9

$mean = \frac{\text{sum of data}}{\text{total \#of numbers}}$; Sum of data = 1 + 9 + 5 + 6 + 9 = 30

; Total # of numbers= 5

$mean = \frac{30}{5}$=6; therefore the mean for this dataset is 6.

The "median" is the "middle" value of your data. To obtain the median, you must firs organize your data in numerical order. In the event you have an even number of responses, the median is the mean of the middle two values.

Example

Dataset: 1, 9, 5, 6, 9

1) Organize data in numerical order = 1, 5, 6, 9, 9

2) Find the middle value = 6

The median is 6.

The "mode" is the value that occurs most often. If no number is repeated, then there is no mode for the list. When you have a large amount of data, it may be helpful to sort your data in numerical order.

Example

Dataset: 1, 9, 5, 6, 9

The mode is 9.

The "range" is the difference between the lowest and highest number. To calculate the range, subtract the lowest number from the highest number. Again, it may be helpful to first organize your data in numerical order when you have a large amount of data.

Example

Dataset: 1, 9, 5, 6, 9

1) Organize data in numerical order = 1, 5, 6, 9, 9

2) calculate the range by subtracting the lowest value from the highest value;

Range = 9-1 = 8

The range is 8.

Analyzing qualitative data

Qualitative data is non-numerical information, such as responses gathered through interviews, observations, focus groups, written documents or journals, or open-ended survey questions. On

its own, or in combination with quantitative information, qualitative data can provide rich information about how programs work. At the simplest level, qualitative analysis involves examining your data to determine how they answer your evaluation questions. Meaningful analysis of qualitative information can be challenging, however.

The first step in analyzing qualitative information is to reduce or simplify the information.

Because of its verbal nature, this simplification may be difficult. Important information may be interspersed throughout interviews or focus group proceedings. During this first stage of analysis, you must often make important choices about which aspects of the information should be emphasized, minimized, or left out of our analysis altogether.

While it can be difficult to remove comments provided directly by your informants, it is important to remain focused on the questions that you are trying to answer and the relevance of the information to these questions.

When analyzing qualitative data, look for trends or commonalities deeply-rooted in the results. Depending on the amount and type of data that you have, you might want to assign codes to the responses to help you group the comments into categories. You can begin to develop a set of codes before you collect your information, based on the theories or assumptions you have about the anticipated responses. However, it is important to review and modify your set of codes as you proceed to ensure that they reflect the actual findings. When you report the findings, the codes will help you identify the most prevalent themes that emerged. You might also want to identify quotes that best illustrate the themes, for use in reports.

Interpreting your results and drawing conclusions

Both quantitative and qualitative analysis only gets you so far. While the analysis can help you to summarize and identify key findings, you still need to interpret the results and draw your conclusions. Drawing conclusions involves stepping back to consider what the results mean and to assess their implications. During this phase, consider the following types of questions:

- What patterns and themes emerge in the results?
- Are there any deviations from these patterns? If yes, are there any factors that might explain these deviations?
- Do the results make sense?
- Are there any findings that are surprising? If so, how do you explain these results?
- Are the results significant from a clinical or statistical standpoint? Are they meaningful in a practical way?
- Do any interesting stories emerge from the responses?
- Do the results suggest any recommendations for improving the program?
- Do the results lead to additional questions about the program? Do they suggest that additional data may need to be collected?

Take care to interpret results accurately and to report sounds conclusions. Get input from stakeholders to ensure that everyone is drawing similar conclusions from the information available.

Self-Check 2	Written Test

Name: _____ Date: _____

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. What do we mean by collecting data? (5pts?)
2. What do we mean by analyzing data? (5pts.)
3. When and by whom should data be collected and analyzed? (5pts.)
4. How do you collect and analyze data? (5pts.)

Note: **Satisfactory rating - 20 points and above** **Unsatisfactory - below 2 points**

You can ask you teacher for the copy of the correct answers.

InformationSheet-3	Identify and Prioritize Recorded Needs/Problems

3.1 Listing out needs from collected data

"The collection of data is not an end in itself, but is essential for informed decision-making. So the needed data should be listing out based on the;

i. Types of needs;
   - Felt: – anything people consciously lack or desire
   - Ascribed – are developed through observation. The observer identifies and details the discrepancy between exhibited behavior and the desired behavior

ii. Methods of gathered data
   - Direct observation
   - Existing documents
   - Group interviews
   - Individual interviews
   - Written surveys

The amount of data available to the on-farm studies during the collection and experimentation phase is considerable, especially if care has been taken in selecting trial sites and establishing report with participating farmers or target groups.

Accordingly, the data collection process should conform to the following guidelines:

- All data should be recorded immediately, in some type of a permanent field book.

- Agronomic data required from each trial should be carefully identified beforehand and arrangements made for their timely recording.
- The format of the field book is redesigned each year in order to correspond to increased knowledge of the farming system and changes in research emphasis.
- There should be space in the field book for noting farmers' observations and opinions.
- A brief record of each visit to the trial should be made.
- Data recorded should not only come from the trial itself but from the farmer's field as well.
- Data should be recorded so that other researchers and other purposes can understand it and use it, even in future years, in interpreting trial results.
- Most data can be recorded without administering questions to the farmer as in a formal survey; casual conversation with the farmer usually works best.

3.2: Prioritizing Needs/Problems

In most small scale irrigation development practices needs/problems are prioritized on the basis of community demand. And these needs use criteria and processes to set priorities.

Criteria: - are standards for making a judgment. They provide guidelines for making decisions. They aren't set in stone: the criteria you use for examining a particular set of issues may be different from those you us for another set, depending on the community you're aiming at, the conditions that are in place at the time of the decision, the needs and concerns of the people making the decision, and other factors.

Priority: - is the order of importance in which one thing falls in relation to another. Like a set of criteria, priorities may change with changes in the community, or with changes in people's concerns or knowledge.

When a community assessment has uncovered a number of issues – perhaps issues in different areas, such as education, health, economics, and racial attitudes – developing a set of criteria for deciding how important each one is to address is crucial to effective action.

There are two sets of criteria needed here:

- One will provide the guidelines for choosing one or more issues to work on.
- The second will help you determine what strategies and approaches are likely to be most effective in addressing the issues you've chosen.

Why develop and use criteria and process to set priorities?

- It creates a structure that makes setting priorities more systematic and more likely to reflect the realities of the community.
- It helps ensure the most important issues for your community are addressed. Using a set of criteria and a good decision-making process makes it much more probable that you'll get the priorities right.

- It provides an opportunity to involve the community in the effort and to get community buy-in. Any effort is far more likely to succeed if the community feels ownership of it and supports it.
- An inclusive criteria-setting process makes sure you don't miss anything that only stakeholders know. Community members, especially those most affected by issues, may have a clearer understanding of what's important to the community and of which issues actually have the greatest impact on people's lives.
- Establishing criteria in a structured and inclusive way ensures that the process is an open one, and that any concerns are raised. It is essential to include those who are most affected by the problem.
- The process of selecting criteria allows an opportunity to educate stakeholders who may not have had this kind of experience before about how to make informed, systematic decisions.

Who should be involved in developing and using criteria and process to set priorities?

There are several categories to be considered.

- **Those most affected by community issues and/or inequities**. This category may include anyone, but most often involves groups with less power and influence.
  - People of low income
  - Diverse people and ethnicities
  - Youth
  - Seniors
  - People with disabilities
  - People living in substandard housing
  - Those most seriously at risk from or affected by particular health, economic, or social conditions
  - Those most seriously affected by negative environmental conditions
- **Organizations and institutions that serve or otherwise deal with those groups, including**:
  - Agricultural, water and human service providers
  - The business community, which needs access to a productive and educated workforce
  - Community coalitions
- **Those charged with carrying out or otherwise implementing proposed interventions, changes in policies or regulation, or preventative measures**.
- **Citizens concerned with the issue(s) at hand**
- **Local and other funders**.

How do we set priorities?

It requires the following steps.

Steep_1: Assemble a participatory group representative of all stakeholders. The first step is to ensure participation and buy-in from the community by inviting stakeholders and other interested individuals and groups to constitute a planning group.

Steep_2: Identify the interests of various stakeholder groups in relation to the process of setting priorities and using them to plan the implementation of an intervention or initiative.

Steep_3: Establish clear criteria for setting priorities for community issues to be addressed. This will be through discussion, brainstorming, or another method of generating ideas, the group should be able to agree on a number of criteria.

Steep_4: Establish a process for engaging stakeholders and the broader community in setting priorities for issues to address. Once we have a list of criteria, we'll have to decide how to apply them in determining the priority order of the issues you've identified in your community assessment.

Steep_5: Establish criteria for selecting an approach to address each of your priority issues. Possible criteria might include:

- Feasibility of carrying out the approach
- The likelihood that the approach will resolve the issue
- The fit of the approach with the effort's/organization's/institution's vision and mission
- The fit of the approach with community standards
- The compatibility of the approach with efforts already ongoing
- Whether the approach is a best or promising practice tried successfully elsewhere
- The availability of people with the expertise to carry out the approach or to train others to do so
- The availability of community assets that can be used in this approach
- The availability of adequate resources to be effective
- The possibility of collaboration or shared workload

Steep_6: Establish a process for selecting approaches. Once again, you have choices to make. The basic process here is likely to be very similar to the one we used to choose the issue(s) to work on.

- Review the criteria for selecting approaches that you agreed on, and make sure that everyone understands them clearly and still agrees.
- Discuss the possible approaches in terms of their history of success, their fit with the community context and standards, their appropriateness in relation to your mission, etc.

- Individually or in small groups, rate the possibilities by how well they're likely to work and how feasible they would be to implement.
- Discuss the ratings as a group, considering whether one or more approaches might be consolidated or combined.
- Rank order and select priorities, using the same method as that used for prioritizing issues.
- From the top choices, vote on which approach (es) to use.

Steep_7: Finalize your choices. Make sure we've considered such factors as what else is going on in the community, where our resources are likely to come from, who might best implement the effort, and whether people will have to be hired for the purpose.

Self-Check 3	**Written Test**

Name: _____ Date: _____

Directions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. Describe the required steeps for prioritizing needs/problems (7pts?)
2. Define the following terms; (4 points)
- Priority
- Criteria
3. Describe the two types of data? (4pts.)

Note: **Satisfactory rating - 15 points and above** **Unsatisfactory - below 15points**

You can ask you teacher for the copy of the correct answers.