

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Comparing the choosing method with indigenous method
- Making discussion with target group
- Documenting and reporting Work outcomes

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, **upon completion of this Learning Guide, you will be able to:**

- Compare the chosen method with indigenous method
- Make discussion with target group
- Document and report Work outcomes

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 and 4.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4
4. Accomplish the “Self-check 1, Self-check 2 and Self-check 3,” **in page - 4, 6, and 9** respectively.

1.1 Comparing the chosen method with indigenous method

To choose and compare an irrigation method, we have to must know the advantages and disadvantages of the various methods. He or she must know which method suits the local conditions best. Unfortunately, in many cases there is no single best solution: all methods have their advantages and disadvantages. Testing of the various methods - under the prevailing local conditions - provides the best basis for a sound choice of irrigation method. This chapter gives some very broad guidance and indicates several important criteria in the selection and comparison of a suitable irrigation method.

The suitability of the various irrigation methods, i.e. surface, sprinkler or drip irrigation depends mainly on the following factors:

- | | |
|----------------------|---------------------------------------|
| ✓ Natural conditions | ✓ previous experience with irrigation |
| ✓ type of crop | ✓ required labour inputs |
| ✓ type of technology | ✓ Costs and benefits. |

Natural conditions

The natural conditions such as soil type, slope, climate, water quality and availability, have the following impact on the choice of an irrigation method:

Soil type: Sandy soils have a low water storage capacity and a high infiltration rate. They therefore need frequent but small irrigation applications, in particular when the sandy soil is also shallow. Under these circumstances, sprinkler or drip irrigation are more suitable than surface irrigation. On loam or clay soils all three irrigation methods can be used, but surface irrigation is more commonly found. Clay soils with low infiltration rates are ideally suited to surface irrigation.

When a variety of different soil types is found within one irrigation scheme, sprinkler or drip irrigation are recommended as they will ensure a more even water distribution.

Slope: Sprinkler or drip irrigation are preferred above surface irrigation on steeper or unevenly sloping lands as they require little or no land levelling. An exception is rice grown on terraces on sloping lands.

Climate: Strong wind can disturb the spraying of water from sprinklers. Under very windy

conditions, drip or surface irrigation methods are preferred. In areas of supplementary irrigation, sprinkler or drip irrigation may be more suitable than surface irrigation because of their flexibility and adaptability to varying irrigation demands on the farm.

Water availability: Water application efficiency is generally higher with sprinkler and drip irrigation than surface irrigation and so these methods are preferred when water is in short supply. However, it must be remembered that efficiency is just as much a function of the irrigator as the method used.

Water quality: Surface irrigation is preferred if the irrigation water contains much sediment. The sediments may clog the drip or sprinkler irrigation systems.

If the irrigation water contains dissolved salts, drip irrigation is particularly suitable, as less water is applied to the soil than with surface methods.

Sprinkler systems are more efficient than surface irrigation methods in leaching out salts.

Type of crop

Surface irrigation can be used for all types of crops. Sprinkler and drip irrigation, because of their high capital investment per hectare, are mostly used for high value cash crops, such as vegetables and fruit trees. They are seldom used for the lower value staple crops.

Drip irrigation is suited to irrigating individual plants or trees or row crops such as vegetables and sugarcane. It is not suitable for close growing crops (e.g. rice).

Type of technology

The type of technology affects the choice of irrigation method. In general, drip and sprinkler irrigation are technically more complicated methods. The purchase of equipment requires high capital investment per hectare. To maintain the equipment a high level of 'know-how' has to be available. Also, a regular supply of fuel and spare parts must be maintained which - together with the purchase of equipment - may require foreign currency.

Surface irrigation systems - in particular small-scale schemes - usually require less sophisticated equipment for both construction and maintenance (unless pumps are used). The equipment needed is often easier to maintain and less dependent on the availability of foreign currency.

Previous experience with irrigation

The choice of an irrigation method also depends on the irrigation tradition within the region or country. Introducing a previously unknown method may lead to unexpected complications. It is not certain that the farmers will accept the new method. The servicing of the equipment may be problematic and the costs may be high compared to the benefits.

Often it will be easier to improve the traditional irrigation method than to introduce a totally new method.

Required labour inputs

Surface irrigation often requires a much higher labour input - for construction, operation and maintenance - than sprinkler or drip irrigation (Figure 65). Surface irrigation requires accurate land leveling, regular maintenance and a high level of farmers' organization to operate the system. Sprinkler and drip irrigation require little land leveling; system operation and maintenance are less labour-intensive.

Costs and benefits

Before choosing an irrigation method, an estimate must be made of the costs and benefits of the available options. On the cost side not only the construction and installation, but also the operation and maintenance (per hectare) should be taken into account. These costs should then be compared with the expected benefits (yields). It is obvious that farmers will only be interested in implementing a certain method if they consider this economically attractive.

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Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. To choose and compare an irrigation method what information we have to know?
(5pts.)

Note: Satisfactory rating 5 points

Unsatisfactory - below 5 points

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Information Sheet-2	Make discussion with target group
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2.1 Stakeholder Analysis and Participation

The planning of new irrigation development or the upgrading of existing systems is increasingly based on the process of stakeholder participation.

In broad terms, stakeholders including individuals farmers, private or public enterprise, benefactors and water user organization which are concerned with water resources and have an interest in their development. The explanation can be broad or narrow involvement liable on the type of water resource development schemes under consideration. When the project is said to be larger it needs higher number of stake holders' involvement.

A stakeholder is anyone who has a direct or indirect interest in, or is affected by, or can affect the outcome of irrigation development. A stakeholder approach to irrigation development requires an understanding of priority problems and recognition of the stake of all participants in achieving the success of any irrigation project.

Stakeholders may be identified through answering the questions:

- Who has or needs resources, like land and water?
- Who is affected by the use of these resources by others?
- Who influences decisions about these resources?

Irrigation is more effective if all users and non-users participate actually during the planning, implementing, maintaining, monitoring and evaluating works. The participation of the direct stakeholders becomes the actor to facilitate during managing and governing of any irrigation schemes may be realized in several ways, provisional on the nature of system as well as the size of system. The management committee may be elected by the water users, and they try to organized water users group. From the earlier period peoples were ignored women's participation during irrigation development projects. But female headed household become a gender biased in contradict females have a central role for the development of irrigation water project. Irrigation should have adverse effects among the beneficiaries, if there are not equal and fair distribution resources.

Gender issues: Unlike the water supply projects, the irrigation water development projects female involvements are lower. In most rural areas women are the primary water carriers and users. In order to promote small scale irrigation development in Ethiopia have compensated service to gender. Female involvement on the irrigation water development couldn't be strong enough their active participations can be taken in to considerations.

Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Who are target/stakeholders?(5pts)

Note: Satisfactory rating 5 points

Unsatisfactory - below 5 points

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Information Sheet-3	Documenting and reporting Work outcomes
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3.1 Documenting and reporting Work outcomes

3.1.1 Documenting Work outcomes

Data documenting are maintained in an archive so as to be retrievable as needed. Records are preserved and archived for retrieval as needed based on the following:

- ✓ Include documenting of all data and information required such as training records, results of audits and reviews, copies of monitoring (sampling) and reporting analytical results, expired permits, construction approvals, and inspection results.
- ✓ Ensure that documenting is legible, identifiable and traceable to the operation/activity.
- ✓ Ensure that documenting are stored and maintained so they are readily retrievable and protected against damage, deterioration or loss.
- ✓ Ensure that the retention times of documenting have been established, recorded and communicated to staff.
- ✓ The data documented should be legible, if possible written in computer, accurate (carefully documented) and complete (consisting of all the required information).

3.1.2 Reporting Work outcomes

Reporting: Think about who is going to read the report. What you say and how you say it will depend on this.

In Writing a report: -

- ✓ What need were you trying to address? (Your original aim?)
- ✓ What did you actually do? (Out puts)
- ✓ What went wrong and why?
- ✓ What difference did you make? What were the key headline achievements? (outcomes)
- ✓ What could be learned from your experience? Will you do anything differently next time?

It is a mistake to start to write any report until you have -

1. analyzed your information
2. Decided what you want to say

If you don't do this, your report is likely to be muddled, and the reader will not know what you're trying to tell them. It will be a waste of time and effort.

Reporting should not be something you do just because you have to, for example for a funder.

There are many ways to use reporting to tell your story:

- ✓ Your own annual report
- ✓ Presentations
- ✓ Work report to managers, trustees or colleagues
- ✓ Newsletters
- ✓ Web pages
- ✓ Press releases
- ✓ Feedback to staff (e.g. appraisal)
- ✓ Report for funder

The main content of your report should include:

Our outputs: main facts and figures about our activities:

The main facts and figures about your activities

Our outcomes: what did we achieve?

What goes here?

The outcomes you have achieved. Try to be specific.

So, based on this principle we have to report our work outcomes to appropriate persons.

Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. In Writing a report, what things you should have think? (5pts.)

Note: Satisfactory rating 5 points

Unsatisfactory - below 5 points

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Reference

1. <https://www.jstor.org>
2. www.fao.org
3. <https://www.tandfonline.com>
4. <https://www.researchgate.net>