



NQF Level: 3

US No: 116274

# Facilitator Guide

## Primary Agriculture

# Farm planning for conservation and water harvesting



Facilitator: .....

Company: .....

Commodity: ..... Date: .....

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agriculture

Department:  
Agriculture  
REPUBLIC OF SOUTH AFRICA



## Before you get started...

Dear Facilitator,

This Facilitator Guide (together with the relevant Learner Guide) is aimed at facilitators who will be assisting learners wishing to complete the following unit standard:

<b>Title:</b>	Assist in farm planning and layout for conservation and rainwater harvesting		
<b>US No:</b>	<b>116274</b>	<b>NQF Level:</b>	<b>3</b>
		<b>Credits:</b>	<b>3</b>

This guide contains all necessary facilitation instructions to ensure that learners will attain the expected competencies required by the above-mentioned unit standard. This guide is designed to be used during the presentation of a learning session based on this unit standard. The full unit standard is attached at the end of this guide as well as at the end of the relevant Learner Guide. Learners are advised to read the unit standard at their time. Please discuss the unit standard with the learners to ensure that they understand what is expected from them to achieve the outcomes of the unit standard.

This unit standard is one of the building blocks in the qualifications listed below. Please mark the qualification you are currently facilitating, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48976	3	120	<input type="checkbox"/>
National Certificate in Mixed Farming Systems	48977	3	120	<input type="checkbox"/>
National Certificate in Plant Production	48975	3	120	<input type="checkbox"/>

Please mark the learning program the learners are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	<input type="checkbox"/>	<input type="checkbox"/>
Skills Program?	<input type="checkbox"/>	<input type="checkbox"/>
Short Course?	<input type="checkbox"/>	<input type="checkbox"/>

**Note to Facilitator:**

If you are presenting this module as part of a full qualification or learnership, please ensure that you have familiarised yourself with the content of the qualification.

Please explain the above concepts to the learner.

There are three guides, namely the Learner Guide, the Assessor Guide and the Facilitator Guide. These guides have been developed to address specific aspects of the learning experience. You therefore need to use these guides complementally to one another.

**Make this an enjoyable learning experience!**

## Context of Application ...

Primary Agriculture is a diverse sector and a wide range of commodities is being produced for both national and international market. Each commodity has its own production requirements and practices. You will be facilitating the learning process within a specific context where a specific agricultural commodity is being produced. The learning material has been written in a **generic** manner, as it is aimed to be available on national level and should be relevant to be applied within a variety of commodities. It is therefore inclusive of all agricultural commodities and crop in this field. Therefore, the examples that are being used in the materials may not always be applicable to your specific community, commodity, environment or region.

This presents you, the facilitator, with the challenge to **contextualise** the learning material. It is imperative that you, the Facilitator and Assessor interpret and present activities, case studies and projects related to the material in such a way that learners can easily identify and apply their knowledge within their own context. This will require from you to add examples of crop, which are applicable to the community or farm. Learners must be guided with examples from their own communities, commodities, environment or regions. This should be done by complementing the learning material with:

- Examples relevant to the commodity,
- Including commodity specific requirements,
- Including operating procedures of the farm,
- Including agricultural practice specific requirements,
- Agricultural markets,
- Guiding learners to write these specifics down in the learning guide, etc.

**The contextualisation of the learning material is a very important step in preparing for and facilitating the learning experience and enough time and effort should be put into this exercise.**

According to the qualifications mentioned on page 2, this module could be contextualised to fit the following groups of commodities:

Plant Production	Animal Production	
<ul style="list-style-type: none"> <li>• Organic production,</li> <li>• Hydroponic production,</li> <li>• Permaculture production,</li> <li>• Agronomy,</li> <li>• Horticulture,</li> <li>• Natural resources harvesting.</li> </ul>	<ul style="list-style-type: none"> <li>• Small stock production,</li> <li>• Large stock production,</li> <li>• Dairy production,</li> <li>• Pig production,</li> <li>• Poultry production,</li> <li>• Game,</li> <li>• Aqua / mari culture,</li> <li>• Commercial insects</li> <li>• Animal fibres harvesting,</li> <li>• Bee keeping,</li> </ul>	<ul style="list-style-type: none"> <li>• Natural resources harvesting,</li> <li>• Organic production,</li> <li>• Permaculture production,</li> <li>• Eco/Agri Tourism,</li> <li>• Agro Chemicals,</li> <li>• Horse Breeding,</li> <li>• Etc.</li> </ul>

## How to use this guide ...

Throughout the guide information is given specifically aimed at you, the facilitator, to **assist** in the actual presentation of the learning material and/or facilitation of the learning process. Although this guide contains all the information required for attaining competency in this unit standard, references to additional resources, both printed and electronic, are provided for additional reference by the facilitator and further study by the learner.

Please note that the purpose of this information is merely to **guide** you, the facilitator, and is provided as a suggestion of possibilities. It remains the responsibility of every facilitator to re-assess the learner/s in each learning situation throughout the learning process in order to stay in touch with their specific learning needs. This should be the determining factor in the choice of the learning approach to follow.

Use the different boxes listed below for identification purposes:



Instructions regarding **activities**, whether group or individual activities will be described in this box.



Facilitators' Tip ...

### My Notes ...

You can use this box for your own notes/comments.

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# What & How will you be Facilitating?

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# The Learning Experience...

**On completion of this module, the learners will be able to:**

- ◆ Plan, lay out and develop a maintenance programme for conservation and infrastructure development
- ◆ Design, construct and maintain resource use practices that include, but not restricted to, soil and water erosion prevention measures in an agricultural environment.

**Learners will specifically be able to:**

- ◆ Assist in a land capability analysis to serve as the basis for development of an area or an enterprise selection for the farm.
- ◆ Design and construct prevention structures and infrastructure necessary for the farm area or the farm enterprise applying sustainable resource use principles
- ◆ Design and construct all structures using simple tools and equipment.
- ◆ Monitor implementation of principles for natural resource management and infrastructure maintenance.
- ◆ Maintain, report faults, and where appropriate repair them under supervision.

**Learners will also gain basic knowledge of:**

- ◆ Role and function of soil and water samples, weather information, vegetation, infrastructure, livestock and crop characteristics, production cycles, records, markets, health and hygiene within production procedures.
- ◆ Description, characteristics and properties of vegetation, infrastructure, weather, production cycles, markets within production procedures.
- ◆ Livestock and crop characteristics
- ◆ Regulations and legislation related to production procedures.
- ◆ Understand the procedures and principles followed to determine the viability of an enterprise.
- ◆ Understand how the land’s capability affects viable land use planning.

**Learning Assumed to be in Place:**

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

- ◆ NQF 2: Apply layout principles for conservation and infrastructure or equivalent.



Remember to do a diagnostic assessment of the learner’s prior learning and ensure that they are starting at the correct level.

## Learning Program Time Frames

	Total time allocated (hours)	Theoretical learning time allocated (hours)	Practical learning time allocated (hours)	Activities to be completed
<b>Complete Program (including summative assessment)</b>	30 hours	12 hours 30 minutes	17 hours 30 minutes	8
<b>Learner Orientation and "Ice Breaker"</b>	1 hour	30 minutes	30 minutes	
<b>Purpose, Introduction and Learner Directions</b>	1 hour	30 minutes	30 minutes	
<b>Session 1</b>	12 hours	6 hours	6 hours	1 - 5
<b>Session 2</b>	3 hours	1 hour	2 hours	6
<b>Session 3</b>	7 hours	1 hour	6 hours	7
<b>Session 4</b>	3 hours	1 hour 30 minutes	1 hour 30 minutes	8
<b>Session 5</b>	2 hours	1 hour	1 hour	9
<b>Preparation for Assessment &amp; revision</b>	1 hour	1 hour	0	



# Facilitator's Checklist & Training Aids

<b>Learner support strategies:</b>
<p><b>Learners are supplied with all resources and aids as required by the programme – including:</b></p> <ul style="list-style-type: none"> <li>▪ Objects &amp; devices such as equipment, protective clothing, safety gear, etc.</li> <li>▪ Learner Guides</li> <li>▪ Visual aids, etc.</li> </ul>

Use this checklist below during your preparation to ensure that you have all the equipment, documents and training aids for a successful session.

<b>Preparation:</b>	<b>Yes</b>	<b>No</b>
<b>Qualification Knowledge</b> – I have familiarised myself with the content of the applicable qualification		
<b>Unit Standard Knowledge</b> – I have familiarised myself with the content of all aspects of the applicable unit standard		
<b>Content Knowledge</b> – I have sufficient knowledge of the content to enable me to facilitate with ease		
<b>Application knowledge</b> – I understand the programme matrix & have prepared for programme delivery accordingly		
<b>Contextualisation</b> – I have included information which is specific to the commodity and practices related to the commodity		
<b>Ability to respond to learners background &amp; experience</b> – I have studied the learner demographics, age group, experience & circumstances & prepared for programme delivery accordingly		
<b>Enthusiasm &amp; Commitment</b> – I am passionate about my subject & have prepared my programme delivery to create a motivating environment with real commitment to success		
<b>Enterprise knowledge</b> – I know & understand the values, ethics, vision & mission of the workplace & have prepared my programme delivery, reporting & administrative tasks accordingly.		
<b>Equipment check:</b>		
Learner guides x 1 per learner		
Assessment guides x 1 per learner		
Writing materials & stationary (facilitator & learner)		
White board & pens		
Flip chart paper		
Proxima projector & screen		
Laptop & programme disk		
Sample Hand-outs and examples of laws and other relevant documents		



Safety gear as prescribed by unit standard and applicable legislation		
<b>Documentation checklist:</b>		
Attendance Register		
Course Evaluation		
Learner Course Evaluation		
Portfolios of evidence		

## Contextualisation of Content!

Go through this module and indicate what specific **information** / **activities** / **examples** should be included in this module?

Contextualisation	
<ul style="list-style-type: none"> <li>▪ Commodity specific?</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Operating procedures of the farm?</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Agricultural practices?</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Agricultural markets?</li> </ul>	

# Introduction

In order for a farming enterprise to be successful the decision about what to farm must be informed by detailed and accurate information about:

- ◆ What natural and other resources are available,
- ◆ The characteristics of these resources, and
- ◆ How these resources can be used sustainably.

Once we have a detailed understanding of these we can consider which land-use options are the most appropriate for the given context. In order to select our enterprise we must have a thorough understanding of the various input and resource needs of a given enterprise so that these needs can be met sustainably. We must understand fully what resources are required in order to farm at maximum efficiency, and those resources must be available in the appropriate quantity and be of the right quality.



For example, it does not make sense to plan a dairy enterprise when there is insufficient grazing and water available.

The next step is to put the right things in the right place (structures and infrastructure) so that the available resources are conserved, used sustainably, and so that the farming enterprise is implemented in the most efficient way possible.

Once established, the structures and infrastructure must be monitored and maintained routinely so that the farming activities continue to run smoothly and for the natural resource base to be conserved.

**My Notes ...**

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Session

# 1 The role of land capability in development or enterprise selection

**Learner Guide:  
Page 7**

*After completing this session, the learner should be able to:*

**SO 1: Assist in a land capability analysis as the basis for the development of an area or an enterprise selection for a farm.**

Concept (SO 1)	Time frame	Activities related to the concept
Natural resource qualities in relation to conservation and sustainable resource use.	<b>12 hours</b>  <b>6 hours theory</b>  <b>6 hours practical activities</b>	<b>Activity 1</b> <b>30 mins</b>
A natural resource survey and physical observation to decide on appropriate land capability options for an identified area, a given farm layout and identified infrastructure needs.		<b>Activity 2</b> <b>45 mins</b>
Plant, livestock and human needs.		<b>Activity 3</b> <b>30 mins</b>  <b>Activity 4</b> <b>2 hours</b>  <b>Activity 5</b> <b>1.5 hours</b>



**Facilitators' Tip ...**

In Session 1 it is important for the facilitator to assist learners in accessing relevant local information, such as climate, vegetation and soil statistics and data. If possible, the first activity should be substituted with information that is relevant to the local context.



**Please allow learners to complete Activity 1 in their Learner Guides**

Type of activity	Resources
Group or individual activity answering questions based on information provided.	Learner Guide
<b>Instructions to give to the learners</b>	
Read through the questions and use the information the table to find the answers.	



**Facilitators' Tip ...**  
Assessing the local soil is a fun and interesting activity for the learners. It can, however, be messy. Be prepared with newspaper and cleaning equipment.



**Please allow learners to complete Activity 2 in their Learner Guides**

Type of activity	Resources
Group soil study	Learner Guide 3 x soil samples per group (enough!) 3 x glass jars with lids per group Water 1 bottle peroxide per group 3 magnifying glasses per group Sheets of white paper Water jugs or bottles

**Instructions to give to the learners**

In an ideal situation, we would send soil samples to a professional laboratory for testing. The results will provide us with information about soil minerals and soil condition. However, we can perform elementary tests on soils ourselves and this will give us a good idea of what kind of soil we have and what its potential might be.

You can start off by answering a few questions (as the indigenous people of the world have been doing for centuries) that can reveal a lot about soil:

Your facilitator will provide you with three distinctly different soil samples. You are going to test each soil sample and assess the potential of the three samples. Make sure you divide your soil sample into four so that you have enough soil for all four tests.

Once you have conducted each test, complete the table below to record your findings.

**Test 1: What kind of soil do we have: Bottle test.**

Use three equally sized bottles. Place the same amount of soil from each sample into the bottle, about half-full. Fill the jar with water, close the lid and shake it well. Let the bottle stand. The soil particles will settle according to their weight and size; heavy particles will settle first and silt is likely to stay suspended for up to a few weeks.

The layers that form will give you an indication of what kind of soil you have; clay, loam, sandy.

**Test 2: What kind of soil do we have: Moulding test**

Take a small amount of soil in the palm of your hand. Add enough water to make a paste, similar to bread dough. Mix it thoroughly and try to answer the following questions, using the list below as a guideline for your answers.

1. How does it feel?
2. Does it form a ball?
3. Can you form a ribbon?
4. Can you bend it into a circle without it breaking?
5. Is it consistently moist?

Use the table in the learner guide to record your answers.

**Test 3: How healthy is our soil: Peroxide test**

Peroxide reacts to bacteria by bubbling vigorously. The more bacteria, the more bubbles. Bacteria is the foundation of soil ecology; if there is a low bacteria population it is likely that the food web of soil organisms is unstable and the population low. We can assess the general potential of soil using peroxide. (Peroxide is available at most chemists for a small amount. Use 20% strength, if possible.)

**Test 4: How healthy is our soil: Living organism audit**

A healthy soil will contain a diverse range of living organisms, including prey and predator species. Take the three samples and use the Soil and Compost Life sheets to record how many of which species you are able to find in your sample. Assess the condition of your samples based on the organisms you are able to find. Use the sheets of white paper provided by your facilitator as the base on which to work – it's easier to see the organisms.



**Please allow learners to complete Activity 3 in their Learner Guides**

Type of activity	Resources
Individual activity	Learner Guide
<b>Instructions to give to the learners</b>	
Read through the questions and write your answer in the space provided.	



**Please allow learners to complete Activity 4 in their Learner Guides**

Type of activity	Resources
Group survey o the farming activities and the impact on the local ecology	<ul style="list-style-type: none"> <li>• A map of the area to be surveyed,</li> <li>• Test results of water and soil samples that have been taken,</li> <li>• A list of significant indigenous plants and animals (if appropriate),</li> <li>• A list of key invasive/alien species, and</li> <li>• Appropriate climate information.</li> </ul>
<b>Instructions to give to the learners</b>	
<p>This activity involves an excursion onto the farm where, in small groups, you will survey the natural resources and the physical layout of the land. Whilst doing so you will also assess the condition of the farm and identify areas that have been negatively impacted upon by farming activities.</p> <p>The facilitator will provide you with:</p> <ul style="list-style-type: none"> <li>• A map of the area to be surveyed,</li> <li>• Test results of water and soil samples that have been taken,</li> <li>• A list of significant indigenous plants and animals (if appropriate),</li> <li>• A list of key invasive/alien species, and</li> <li>• Appropriate climate information.</li> </ul> <p>In your group, walk around the farm to the identified recording sites and write down your assessment of the natural resources and physical layout of the land. Make sure you remember to include observations about degraded areas.</p> <p>Remember to carry water, wear hats and comfortable shoes, and put on sunscreen.</p>	



**Please allow learners to complete Activity 5 in their Learner Guides**

Type of activity	Resources
Individual or group activity: Enterprise needs analysis, selection and elementary layout	This is a practical activity. Learners should be provided with a large cardboard to compile a map.

**Instructions to give to the learners**

Based on the knowledge and skills you have gained so far, what do you think is the ideal enterprise for the farm where you are working? You may select more than one, if this is appropriate. Motivate your answer based on available natural resources and what these enterprises require from the surrounding natural resources. Provide a basic map for the layout of this enterprise, based on the farm where you are currently working. Staple the map into your Learner Guide.

### My Notes ...

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Session

# 2 Prevention structures and infrastructure

**Learner Guide:**  
**Page 33**

*After completing this session, the learner should be able to:*  
**SO 2: Design and construct prevention structures and infrastructure necessary for the farm area or the farm enterprise**

Concept (SO 2)	Time frame	Activities related to the concept
Conservation principles	<b>3 hours 1 hours theory</b>	<b>Activity 6</b>
Maintenance Principles		
Designing and constructing effective conservation applications		
Designs and elementary requirements for the construction of structures		



**Please allow learners to complete Activity 6 in their Learner Guides**

Type of activity	Resources
Group activity, continuation of Activity 4 (Survey)	Notes from Activity 4
Instructions to give to the learners	
In Activity 4, page 28 of your Learner Guide, you conducted a survey. Select two degraded or ecologically threatened areas and devise a plan to rehabilitate them. Write your answers in the space provided.	

**My Notes ...**

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# 3 Designing and constructing structures

Session

Learner Guide:  
Page 40

After completing this session, the learner should be able to:

**SO 3: Design and construct all structures using simple tools and equipment.**

Concept (SO 3)	Time frame	Activities related to the concept
Selecting the appropriate tools and equipment	<b>7 hours 1 hour theory</b>	<b>Practical demonstrations Activity 7</b>
Using simple tools and equipment		
Caring for and maintaining tools		



### Facilitators' Tip ...

This session is entirely practical in nature. You will have to work with farm management to find out what structures can be built on the farm. Divide the learners into teams and either allow them to be part of routine on-farm activities that are appropriate, or arrange for the practical work to be part of the course. Any four of the following (or similar) structures can be made/built:

- Bunds
- Gabions
- Contour bunds
- Mulching
- Hedgerows
- Wind power
- Solar power



Session

# 4 Monitoring the implementation of principles for natural resource management and infrastructure maintenance

Learner Guide:  
Page 44

After completing this session, the learner should be able to:  
**SO 4: Monitor the implementation of principles for natural resource management and infrastructure maintenance**

Concept (SO 4)	Time frame	Activities related to the concept
Monitoring farm layout and infrastructure	<b>3 hours</b>	<b>Activity 8</b>
The infrastructure plan		
Observe and collect data for efficient protection and maintenance		
Problem-solving		



**Please allow learners to complete Activity 8 in their Learner Guides**

Type of activity	Resources
Group activity: Maintenance of structures and infrastructure	On-site activity - Farm
Instructions to give to the learners	
<p><b>Part One:</b> In your Learner Guide you will find a list of structures and infrastructure that are parts of various farming enterprises. Select two from each category and find out what the optimum operational requirements are for each of these, according to the farm's maintenance policy.</p> <p><b>Part Two:</b> Select one item from each category – one of those selected in Part One – and assess the item concerned according to the procedures required for the farm.</p> <p><b>Part Three:</b> Once the monitoring and assessment data gathering is complete, make suggestions for the repair and/or maintenance of the item concerned.</p>	

# 5 Attending to minor faults and maintenance

Session

**Learner Guide:**  
**Page 52**

*After completing this session, the learner should be able to:*  
**SO 5: Monitor the implementation of principles for natural resource management and infrastructure maintenance**

Concept (SO 5)	Time frame	Activities related to the concept
Maintaining conservation structures	<b>Theory 1 hour</b>	<b>Activity 9 1 hour</b>
Causes of destruction, erosion or pollution		
Identifying maintenance needs		



**Please allow learners to complete Activity 9 in their Learner Guides**

Type of activity	Resources
Maintenance Survey	Learner Guide
Instructions to give to the learners	
<p>In your group, select one item from each category in the table provided in your Learner Guide and find out what the maintenance requirements of these items are, within the operational management of the farm where you are working.</p>	

**My Notes ...**

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# What will I do differently next time?

Take some time to **reflect** on your own activities as facilitator of this Unit Standard. Then write down five of the most important lessons you have learnt and include a motivation:

What will I do differently next time?	Motivate how or why (Give examples, reasons, etc.)
1.	
2.	
3.	
4.	
5.	

As facilitator, you have hands on experience in the application of the unit standard. And you might experience difficulties with the unit standard that the developers did not anticipate. Also, the unit standard will be revised at the end of the registration period. Your comments below can be an important contribution in the revision process and should be brought to the attention of either the AgriSETA ETQA manager or the SGB chairperson.

Please take some time to reflect on your experience and list a few of the difficulties you had to address.

Difficulties I had with the Unit Standard	Recommended Changes to Address the Difficulty
6.	
7.	
8.	
9.	
10.	