VOLUME 2: GUIDANCE ON WATER CONSERVATION IN FOOD VALUE CHAINS

Part 1: Guidebook for Emerging Farmers in the Maruleng Municipal Area

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INTRODUCING THE GUIDEBOOK

This guidebook is aimed at emerging farmers in the Maruleng Municipal Area but could also be of interest to emerging farmers from other rural areas.

This book was developed out of a Water Research Commission (WRC) study on Water Conservation in Food Value Chains by Beneficiaries of Water Allocation Reform and Land Reform Programmes[1] and features some of the project team's findings from their research in the Maruleng Municipal Area.

Section One (pages 2-6) deals with how you, as an emerging farmer in the Maruleng Municipal Area, may benefit from a better understanding of what water conservation is and why it is important for you and your farming to practice water conservation.

Section Two (pages 7-10) looks at the importance of knowing when, how and why you need to register your water use or apply for a water use licence. The section also deals with why farmers have to pay charges to an Irrigation Board or Water User Association and how they can know if they are being charged fairly for their water use.

Section Three (pages 11-15) deals with how to plan for the future of your farm and how to achieve your plan. The section also deals with how to use a food value chain to better understand your current situation and why water is important to consider when you are planning for the future.

Some important contact details are listed at the end of the document on page 16.

1 For more information on this study, please contact the project leader Dr Willem de Lange at wdelange@csir.co.za

IMPORTANT THINGS EMERGING FARMERS NEED TO KNOW

SECTION 1:

WHAT IS WATER CONSERVATION AND WHY IS IT IMPORTANT FOR YOU?

As an emerging farmer in the Maruleng Municipal Area you may benefit from a better understanding of what water conservation is and why it is important for you and your farming to practice water conservation

This section will help you to understand:

1. What water conservation means.
2. Why water conservation is important.
3. How to know if you practice water conservation.
4. How to become better at water conservation.
5. How to share your knowledge about water conservation with other farmers.

What does Water Conservation mean?

Water conservation means using water in the most suitable way for your particular farming needs and not wasting water. Water conservation can be achieved in two ways: The first way is through **water use effectiveness**. This can be defined as "doing the right thing" to conserve water, namely by making use of the right kind of irrigation (for example, flood irrigation and drip irrigation) and agricultural practices (for example, mulching, wind rows and minimum tillage).

The second way of achieving water conservation is by means of being **water use efficient**. This means "doing things the right way". In other words, if you are using a specific kind of irrigation or agricultural technique, you must make sure that you apply the technique correctly and that water is not wasted when you do so. For example, being water use efficient means using only as much water as you need to grow healthy crops and no more.

It is important to understand that practicing water conservation does not mean that all farmers should use water in the same way. For example, drip irrigation is not necessarily the best solution for all farmers. As a farmer, you need to decide on the best way to use water, based on what you want to achieve with your farm, the resources you have at your disposal, the crops you are growing, the climate of your area and the size of the area you are cultivating.

If, for example, you are a farmer who farms to feed your family and you use well designed and well managed flood irrigation that does not waste water, you may already be using your water effectively and efficiently.

WHAT IS WATER USE?

Water use means doing something that has an impact on the amount of water in a water source (like a river, lake or dam) or on the quality of that water. Using water to irrigate crops (whether by hand, bucket, flood, drip, sprinkler or any other method), is a good example.

Your extension officer will compare how you are using water to what they consider to be best for farmers like you. They will look at the specific conditions under which you are farming. This includes the resources you have available, the crops you are farming with and the size of the area you are cultivating.

Why is Water Conservation important?

South Africa is a water scarce country – we do not have a lot of rainfall, so there is not enough water to go around. Also, scientists predict that our climate might become even hotter and drier in future. Water is therefore a precious resource which many different water users have to share. These water users include farmers, industry, mining and households. It is important to use water wisely and sparingly, because if we don't, our country is going to run out of water.

Also, if you use water wisely and sparingly, you will reduce your monthly water and electricity bills.

Later in this guide we tell you more about how you can plan better to make sure you have enough water for the future.

Do I practice Water Conservation?

You will not know if you are practicing water conservation unless you compare the way you use water against something (guidelines) or someone (your neighbours). It is a good sign if your neighbours are able to tell that you do not waste water and that you are doing the best you can with the water available to you.

You can also ask your local agricultural extension officer to evaluate and advise you on how to improve your water conservation practices.

When speaking to your neighbour and your extension officer, you will need to show why you think that you are using water in the best way possible for your farming activities and that you are using as little water as possible.

Remember that water conservation is a process; it does not happen overnight.

Water conservation is hard work and means that you have to be a responsible farmer who takes care of the country's water!

HOW CAN I BECOME BETTER AT WATER CONSERVATION?

To help you to understand how you can become better at water conservation, you will need to think about how you use water for farming. There are three important steps you can follow:

1 **STEP 1:** Watering system?

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2 **STEP 2:** Cultivation practices?

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3 **STEP 3:** Water wise decisions?

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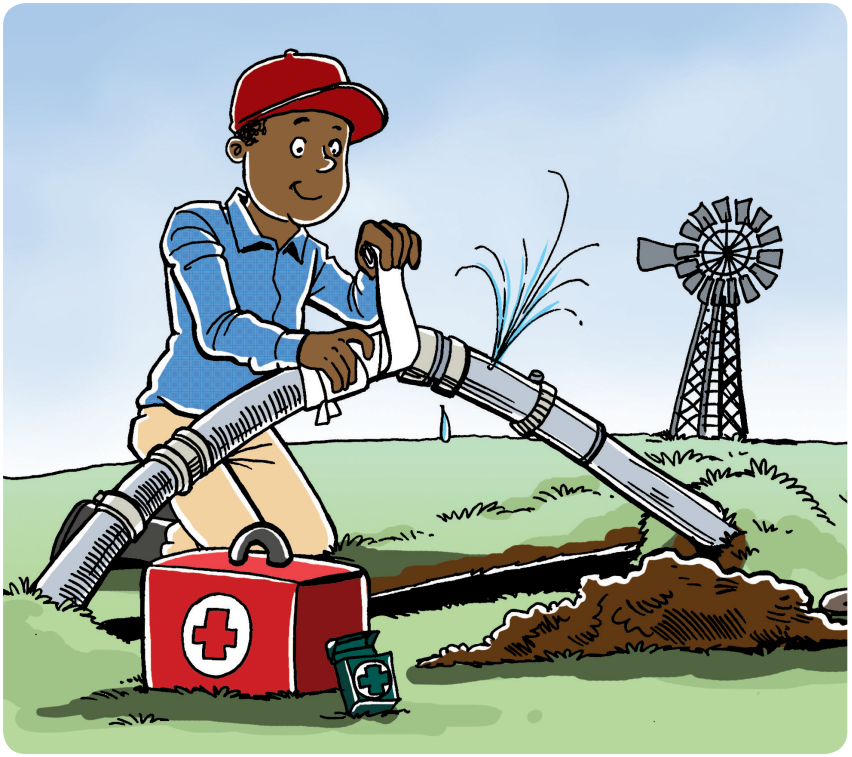
BECOMING BETTER AT WATER CONSERVATION!



1 STEP 1:

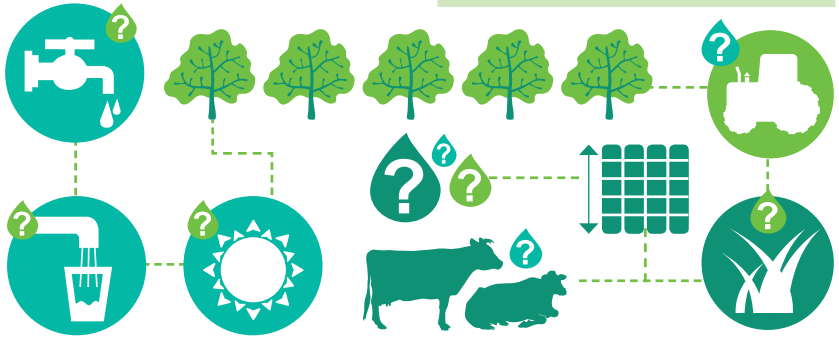
It is useful to start with your watering (irrigation) system and the way you water (irrigate) your crops. Think about the following:

- Are there any leaks in your system? If there are, you need to repair them! It is your responsibility!
- Are there any affordable ways to improve your watering techniques?
- When do you irrigate your crops? It is better not to irrigate during the hottest part of the day or on windy days.

2 STEP 2:

Think about your cultivation practices (the way you grow your crops) and try to look for better ways to save water:

- Do you have trees between your fields (wind rows) to protect your crops against wind? If not, a lot of water will be wasted!
- Do you plough as little as possible (minimum tillage)? Remember the more you plough the more soil moisture you will lose, and the more water you will need to irrigate again!
- Do you make use of mulching? Mulching helps to retain soil moisture, so you can use less water.



3 STEP 3:

Think about the decisions you make on your farm about water use. Here are some useful questions you can ask yourself to steer you in the right direction:

- Are you growing the right crops for this area? The "right" crop could be a crop that uses less water. Growing the right crop can also mean that you are able to grow more of the crop with the same amount of water you are using now.
- Are you cultivating the right size of land? Carefully think about this. You might want to cultivate a smaller piece of land and produce crops of higher quality than what you are producing at the moment.
- Is it worthwhile farming with crops that need to be irrigated? It could be better for you to grow rain-fed crops that don't need to be irrigated, or to farm with livestock.
- Is it worthwhile farming at all? This is a very important question to consider. You need to ask yourself what the benefits of farming are for you and your family and if your area is suitable for farming.

How can I learn from other farmers and share my knowledge with others to help them become better at Water Conservation?

You can approach other farmers in your area and meet on a regular basis to exchange experiences about applying water conservation practices. You can also arrange to show each other how you have improved your water use on your farms. Another thing you can do is invite your extension officer to some meetings to give you tips on how best to use your water. Your extension officer could also organise someone from the Limpopo Regional Office of the Department of Water Affairs or the Lower Blyde River Water User Association to give you tips on water conservation.

IMPORTANT DEFINITIONS TO REMEMBER:

WATER CONSERVATION: Water conservation means doing the right things and doing things right in terms of your farming practices to save water.

WATER USE EFFECTIVENESS: Water use effectiveness means doing the right things when it comes to irrigation and farming practices to meet your farming needs. This means applying the right kind of irrigation (for example, flood irrigation and drip irrigation) and agricultural practices (for example, mulching, wind rows and minimum tillage).

WATER USE EFFICIENCY: Water use efficiency means doing things right when it comes to your water use, in other words using as little water as possible to accomplish your farming objectives.

WIND ROW: A row of trees in or between fields to protect crops from wind and sometimes frost damage.

MINIMUM TILLAGE: Keeping your tillage practices to a minimum to retain the natural structure of the soil as far as possible.

MULCHING: Covering the soil with a layer of organic material.

SECTION 2:

KNOWING ABOUT WATER USE LICENCES AND WATER USE CHARGES

As an emerging farmer you might not have registered your water use and you might not have a water use licence

This section will tell you:

1. Who water in South Africa belongs to.
2. Who has to register their water use.
3. What a water use licence is and why people need one.
4. If you need to have a water use licence.
5. How to register your water use and apply for a water use licence.
6. What can happen to you if you need a water use licence and you don't have one.
7. Why you have to pay water use charges if you receive water from an Irrigation Board or a Water User Association.
8. How to know if you are being charged correctly.

Who does Water in South Africa belong to?

Water in South Africa belongs to the government, which regulates water use through the water use registration and licensing system.

The Department of Water Affairs says that South Africa's scarce water resources are under increasing pressure. Because of this growing pressure, South Africans have to use water very carefully to make sure that there will be enough water for everyone in future (DWA, 2013).

The Department of Water Affairs says that it is important to know how much water is being used in South Africa, what it is being used for, who is using it and where it is being used. With this information the Department will be able to know how much water is available to use and will be able to plan South Africa's water use better. The Department will also be able to use this information to help with its water allocation reform plan by making water available to emerging farmers so they can contribute to the economy. The first step to helping the Department collect this information is by registering your water use (DWA, 2013).

THE CONSTITUTION (Act 108 of 1996)

The Constitution says that:

- everyone has the right to have access to sufficient food and water;
- everyone has the right to an environment that is not harmful to their health or well-being; and
- the environment must be protected for the benefit of all people living now and in the future.

WHO HAS TO REGISTER THEIR WATER USE?

Water use registration means obtaining official permission from the Department of Water Affairs to use a certain amount of water on a regular basis and where that water use is taking place. In most cases, farmers who use water to irrigate crops that they are going to sell, or who keep livestock for commercial purposes (in other words, who have feedlots), need to register their water use (DWAF, n.d.).

If you belong to an Irrigation Board or a Water User Association, you need to check with them and with the Limpopo Regional Office of the Department of Water Affairs, whether or not the Irrigation Board or Water User Association has registered your water use on your behalf. If not you will need to register your water use yourself (DWAF, n.d.). Farmers with small vegetable gardens who do not sell their vegetables or who keep a few animals for domestic use do not need to register their water use. The Department of Water Affairs refers to these as "Schedule 1 water users" – these people do not need to register (DWAF, n.d.).

The Department of Water Affairs says that the registration comprises of the asking and answering of 6 basic questions:

1. Who are you?
2. Where are you? (This relates to where the water user may be contacted, namely contact details.)
3. How much water are you using? / How many waste loads are you discharging?
4. What are you using the water for? (This relates to water use sectors and in the case of waste, it relates to where the waste was generated from.)
5. Where are you using it? (This relates to where the water use is taking place, for example in a water management area.)
6. Where are you obtaining your water from? / Where are you discharging it?

For more information go to the Department of Water Affairs website on Water Allocation Reform at: http://www.dwaf.gov.za/Projects/WARMS/default.aspx.

What is a water use licence, and why do people need one?

A water use licence is the official permission by the Department of Water Affairs to use a certain amount of water to irrigate your crops or to water your animals. Water users in South Africa need water use licences so that the Department can keep track of who uses water in which areas, and how much water is being used for different purposes (DWAF, n.d.).

DO I NEED A WATER USE LICENCE?

You will probably need a water use licence if you are a farmer who uses water to irrigate crops that you are going to sell, or if you keep livestock for commercial purposes (in other words, if you farm for the purpose of making money). In certain cases and in certain areas of the country, "general authorisations" apply. This means that a water user is allowed to use water without a licence as long as they

meet the conditions set by the general authorisation. Examples include storing a limited amount of water in a dam, taking a limited amount of water from a specific river, or taking a limited amount of water from a borehole. You need to check with your extension officer who could ask the Limpopo Regional Department of Water Affairs if you need to apply for a water use licence (DWAF, n.d.).

If you are part of an Irrigation Board or a Water User Association you need to check if they have a water use licence, and if this water use licence also covers your water use or if you have to apply for an individual licence.

You do not need a water use licence if you are a farmer with a small vegetable garden and you do not sell their vegetables, or if you keep a few animals for domestic use (Schedule 1 user) (DWAF, n.d.).

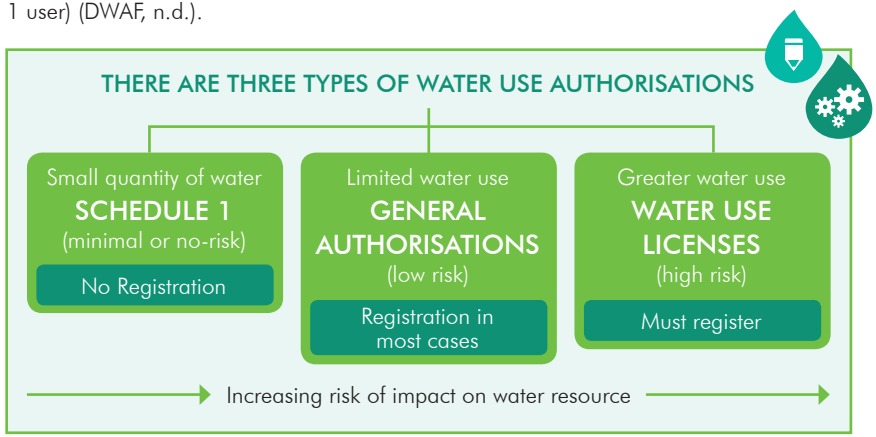


Figure 1. From: DWAF, n.d. Guide to the National Water Act, Republic of South Africa.

How do I register my water use and apply for a water use licence?

You can start the process of registering your water use and applying for a water use licence by talking to the Limpopo Regional Office of the Department of Water Affairs. Only the Department can register your water use or issue you with a water use licence. You can also ask your extension officer, or your Irrigation Board or Water User Association to help you get in touch with the Regional Office. You can also look at page 16 of this booklet for important contact numbers.

What can happen to me if I need a water use licence and I do not have one?

If you need a water use licence and you do not have one, the Department of Water Affairs can ask you to scale down your water use to Schedule 1 use. If you do not comply with this instruction and continue operating without a licence, the Department can prosecute you.

Why do I have to pay water use charges if I receive water from an Irrigation Board or a Water User Association?

You have to pay water use charges to an Irrigation Board or Water User Association to pay for the infrastructure that is being used to supply water to you (for example canals, pipelines and pumping costs); and for the right to use water.

IMPORTANT DEFINITIONS TO REMEMBER:

WATER USE LICENCE: A water use licence is a piece of paper stating the official permission by the Department of Water Affairs to use a specified amount of water for productive and beneficial purposes, over a set period of time and under specific conditions set by the Department.

SCHEDULE 1 WATER USE: The Department of Water Affairs refers to Schedule 1 water use when people use water in a way that has a very small impact on the water resource. Schedule 1 activities include taking water from a water resource to which they have lawful access for domestic use, storing and taking run-off water from a roof, small gardening that is not for commercial use, keeping a few animals for domestic use, using the water surface or surrounding area for recreational use (for example, swimming) or using water for emergencies (for example, human consumption or fire-fighting).

HOW DO I KNOW THAT I AM BEING CHARGED CORRECTLY?

The only way to know if you are being charged correctly is to measure your water use yourself and then to compare this to what you are being charged for. If you do not measure your water use yourself it is impossible to know. You will need to keep a record of your water use to prove that you are being over charged.

SECTION 3:

PLANNING FOR THE FUTURE

Having a plan in place and making sure that you have thought about the future of your farm is vital if you want to become a successful farmer.

This section will tell you:

1. How you can plan for your future.
2. How to use a food value chain to better understand your current situation.
3. How you can achieve your future plans.
4. Why water is important to consider when you are planning for the future.

Remember, having a vision for the future means that you have an idea of how the future should be, but it does not tell you how to get there!

HOW CAN I PLAN FOR MY FUTURE?

It is easy to plan for your future if you have a "vision". A vision is a picture of what you want the future to be like (UP, 2013). This can be a vision for yourself, your family or your farm.

What is important is that you think about *where you have come from* (your history) *and where you are going to* (your future).

Ask yourself the following questions: "What lessons have I learned from the past that can help me to create a vision for the future?" and "What about the present would I like to change in the future?"

Because we learn new things every day, it is important to think about your vision regularly and not to be afraid to change it! Questions you can ask are:

- "Has anything changed?"
- "Have I learned anything new?"
- "Do I still want the same things for the future?"

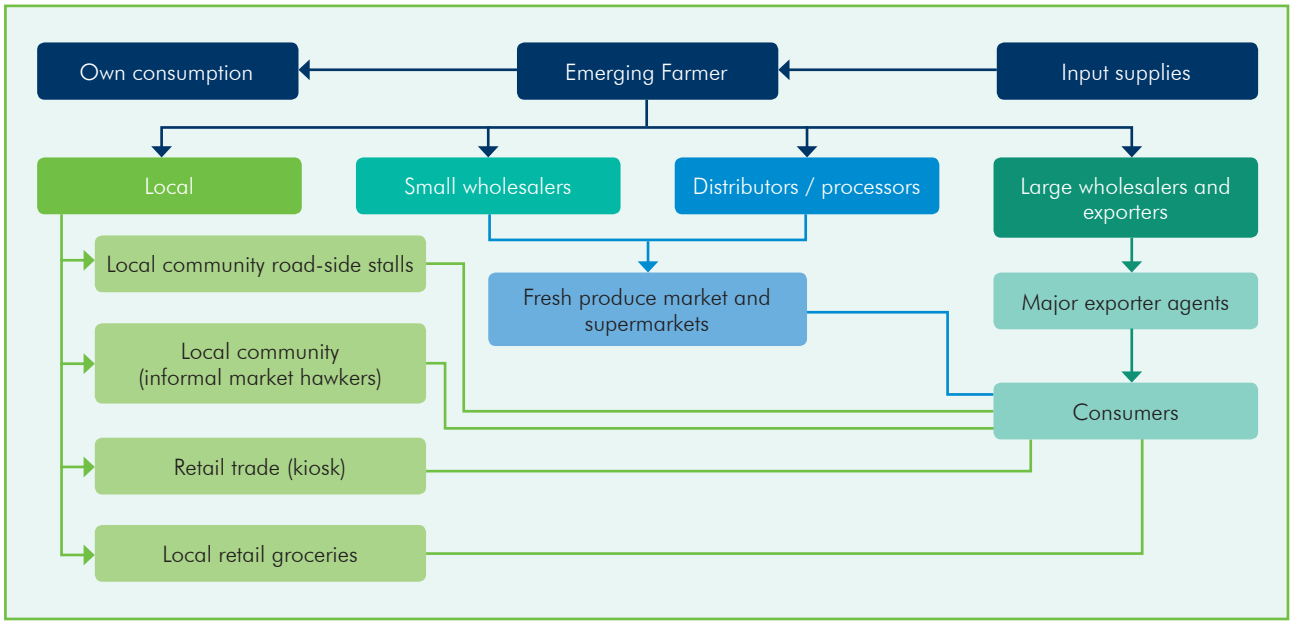
USING A FOOD VALUE CHAIN TO BETTER UNDERSTAND MY CURRENT SITUATION

One of the ways that farmers and experts in agriculture use to understand a farmer's current position is to look at the food value chain the farmer participates in. This food value chain needs to be understood in relation to the type of product(s) the farmer produces.

A value chain is often recognised as a network of economic transactions of a product or service (Crafford et al., 2004). A food value chain therefore presents the links between the production, processing, storage, marketing, distribution and retail of food products (UNIDO, 2009). More simply put, a food value chain shows us the important steps from growing the food on the farm to getting it to the consumer.

It is important to understand that food value chains can be very broad, but also very specific to a certain geographical area and even a certain type of crop.

Here is a typical food value chain that was observed for emerging farmers in the Maruleng Municipal Area:



This example is quite general and not very specific in terms of crops produced. However it does show us nicely how goods are moving and where they are moving to.

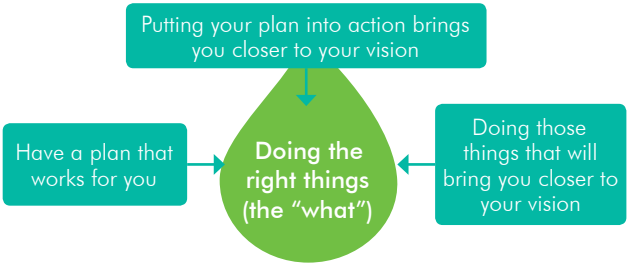
It is important to remember that small scale farmers can also be commercial farmers. You don't have to be a large scale producer in order to produce for the national market or export your goods. What is important is the quality of your goods, the effective use of your resources such as land and water, as well as knowing your market!

HOW CAN I ACHIEVE MY FUTURE PLANS?

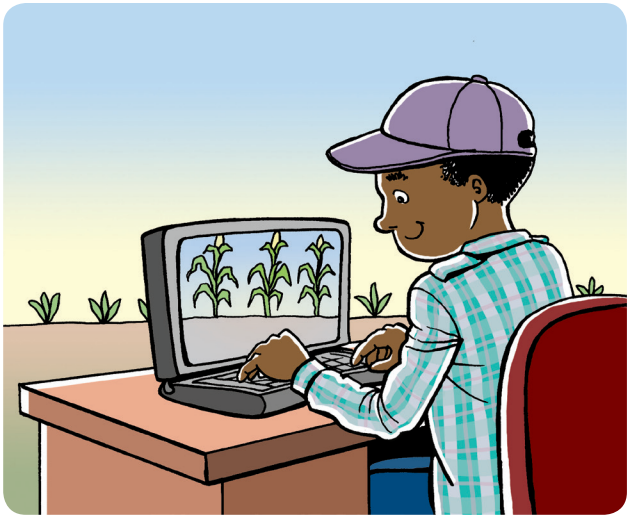
You can achieve your future plans by having a "strategy". Having a strategy is both about ***what*** you do (***"doing the right things"***) AND ***how*** you do it (***"doing things right"***) (UP, 2013).

Doing the right things is about:

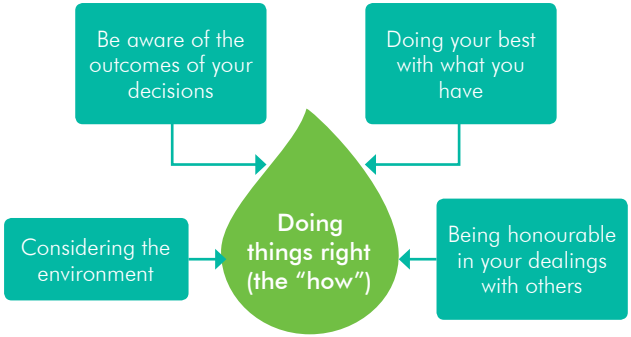
- making sure that you have **a plan that works for you to achieve your vision**. This plan depends on the conditions under which you farm (for example, available water and the size of your farm), and should tell you how to make the most of them.



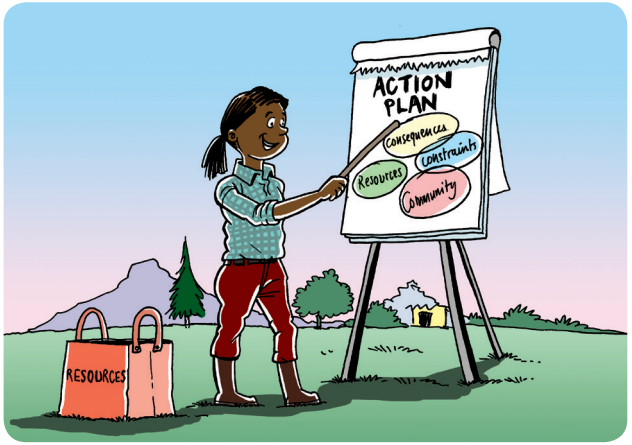
- making sure that putting your plan into action will help you achieve your vision.
- doing the things that will bring you closer to your vision, for example:
  - learning more about the farming and irrigation techniques that are suitable for your area;
  - making sure you know how much money you need and having a plan in place to get the money;
  - understanding where your support networks are (for example, your extension officers) and knowing how to make use of them;
  - finding the sources of information that can help you to achieve your vision and learning how to use them (for example, the Internet);
  - knowing what the Department of Water Affairs and the Department of Agriculture, Forestry and Fisheries need from you and how they can support you; and
  - exploring possible partnerships with other farmers.



Doing things right is about:

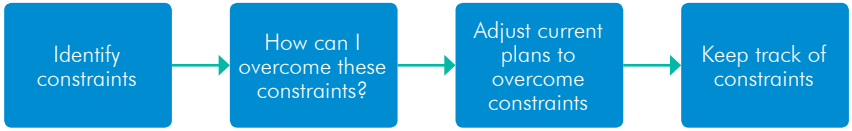


- ***Considering the environment:*** Try and make sure that your plan to improve your farming will not end up harming the environment around you. It is important to keep the environment in a good state because your community and your farming activities will benefit from this. Ask your extension officer if you are not sure if your plan is going to be harmful to the environment.
- ***Thinking about the consequences of your decisions:*** When you make decisions, think about what the good and bad impacts of these decisions could be for the community you live in, for your financial situation, and for the environment around you. If you make decisions with these considerations in mind, they are likely to be better decisions.
- ***Doing the best you can with what you have:*** It is important to do the best you can with the resources (for example, infrastructure, finances, knowledge, labour) that you have available. This does not mean that you will always be limited to these resources. If you have a clear vision in mind, and a good plan to achieve that vision, you can grow the resources that are available to you over time.
- ***Being honourable in your dealings with others:*** This means that you need to treat other people with respect. Respecting others will help create a bond between you and others, and will enable them to trust you. Trust is important between farmers so that they can share their knowledge and learn from each other.



You can also realise your future vision by **understanding your constraints** (the things or problems that are stopping you from achieving your vision). Here it is a good idea to identify the big constraints that are preventing you from achieving your vision (UP, 2013). Examples of constraints include not having enough knowledge about how to improve your farming practices or not having enough money to buy something you need to improve your farming practices.

Once you have identified your constraints, list them and think carefully about them. Ask yourself what you can do to overcome these constraints, and then adjust (change) your plan accordingly. For example, if a lack of knowledge is one of your constraints, think about ways in which you can obtain the knowledge you need. Lastly, it is important to keep track of your constraints over time to see if you are able to handle them, and to see if they are being replaced by new constraints.



Why is water important to consider when I am planning for the future?

Water is a critical resource that we cannot do without. However, the number of people who need water in South Africa is growing every day. That is why we need to find the best way to use our water in future, so that our children and their children will still have enough water for their needs.

IMPORTANT DEFINITIONS TO REMEMBER:

VISION: A vision is a picture of what you want the future to be like.

VALUE CHAIN: A value chain is a network of economic transactions and relates, or describes, the flows or exchanges of goods and services.

FOOD VALUE CHAIN: A food value chain shows the links between the production, processing, storage, marketing, distribution and retail of farm or food products.

CONSTRAINT: Something that is stopping you from realising your vision of the future.

IMPORTANT CONTACT DETAILS

Limpopo Regional Office of the Department of Water Affairs (Tzaneen): 015 290 1215 or http://www.dwaf.gov.za/contactRegions.aspx

Limpopo Department of Agriculture (Tzaneen): 015 294 3000 or http://www.lda.gov.za/Contact%20Us/Pages/default.aspx

Directorate of National Extension Support (Department of Agriculture, Forestry and Fisheries): 012 319 6167 or http://www.nda.agric.za/pages/sideMenu/NationalExtensionSupport.html

Hand in Hand Southern Africa (NGO assisting emerging farmers in the Maruleng Municipal Area): 011 463 4500 or http://www.handinhandsa.org/contact

Technoserve (NGO assisting emerging farmers in the Maruleng Municipal Area): http://www.technoserve.org/

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