

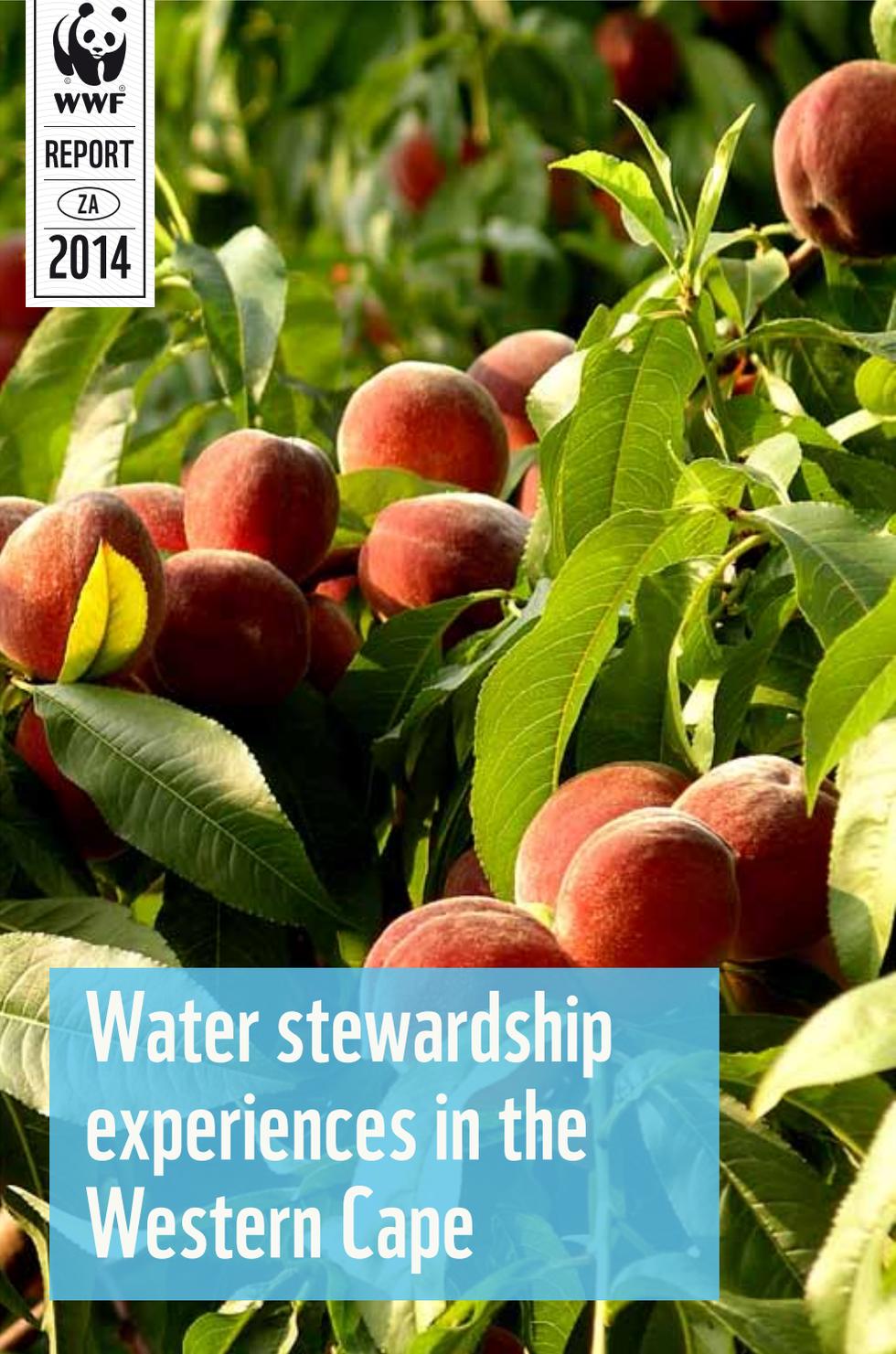


WWF

REPORT

ZA

2014



Water stewardship experiences in the Western Cape

Good water stewardship guidelines for Western Cape fruit farmers

This booklet is addressed to Western Cape agricultural producers, who rely on irrigation and are interested in better understanding water risks and how to reduce these through good water use, protection and stewardship. It shares the experiences of nine stone-fruit farmers in the Breede catchment, who took part in a water stewardship initiative in 2013 and 2014. It is envisioned that their journey will also help other farmers in the region identify ways to improve the use and management of water resources that are critical to sustaining their businesses.

This water stewardship initiative and this booklet are produced by WWF South Africa, the WWF United Kingdom, Alliance for Water Stewardship (AWS), Marks & Spencer and Woolworths.



INTRODUCTION

The Mediterranean climate of the Western Cape translates into hot and dry summers and wet, cold winters. This sets the region apart from the rest of South Africa, which typically receives summer rainfall.

This unique rainfall pattern in South Africa makes the Western Cape the key area for particular agricultural crops that are often linked to the export market. These include stone and pome fruit (apples, pears), citrus as well as grapes. Other crops, such as olives, wheat and vegetables are also common to particular sub-regions. What the Western Cape does have in common with the rest of South Africa is a highly variable climate, in which droughts and floods are a common risk to consider. This is exacerbated by climate change predictions, which foresee the Western Cape to face ever more extreme weather events and, overall, less rainfall. Changing land uses and their various impacts on water resources are resulting in increasing water quality risks. These physical risks come hand-in-hand with the South African government decision to prioritise water allocation for urban and industrial uses in the future¹ – leaving agriculture with the sobering

reality that water is both a necessity for business, but that many risks to water can also hamper business.

Water risks are recognized at many different levels, including the retailers that accumulate risks through the supply chain. The retailer Marks & Spencer applied the WWF-developed Water Risk Filter² to identify any water risk hotspots in its own supply line. The Western Cape came up as a key risk hotspot for stone fruit. As a result M&S partnered with the Alliance for Water Stewardship, the WWF and Woolworths, to work on water stewardship opportunities with farmers in the Breede catchment in order to mitigate this risk. The year 2013 marked the involvement of nine volunteer farmers, looking at identifying on-farm water stewardship options. The project is being extended and in 2015 we will look at water stewardship opportunities in the upper reaches of the Breede.

¹Pott, A., Hallows, J., Backeberg, G. and Döckel, M. 2009. The challenges of water conservation and water demand management for irrigated agriculture in South Africa. *Water International* 34(3): 313-324.

²www.waterriskfilter.panda.org

WATER RISK

In order to address water risks, it is important to first understand them. We found 4 key water risk areas that were relevant to farmers in the Breede:

- Direct **physical risks**, relating to
 - availability of water (drought, flood),
 - reliability (storage & supply infrastructure),
 - and water quality (entering and exiting your farm)
- **Social risks**, typically referring to businesses infringing on water access to members of society – but in South Africa we found the opposite case to also apply, namely vandalism and theft of irrigation equipment, leading to financial loss, water losses, risk to the crops and investment in security surveillance
- **Regulatory risks** caused by changing water allocations and water-related licences, and new water institutions.
- **Reputational and market risk**, which is linked to the real and perceived ecological and social impacts of water uses and discharges.

Also think about the following:

Which of these risks are an issue **on your farm** and which of these risks affect **you as well as your neighbouring farmers** in the area? Understanding that will help you identify which risks you can **address at the farm level**, and which risks go beyond your farm fence and require **a group effort** to reduce.



WHAT IS WATER STEWARDSHIP?

Water risks are becoming ever-more present realities for agriculture, and it increasingly makes good business sense to ensure the right quantity and quality of water available at the right time and place to meet the needs of ecosystems, people and businesses.

Water stewardship for business is a progression of increased improvement of water use and a reduction in the water-related impacts of internal and value chain operations. More importantly, it is a commitment to the sustainable management of shared water resources in the public interest through collective action with other businesses, governments, NGO's and communities.

WWF definition

Becoming a good water steward is a long-term journey. It starts with small steps, becoming aware of water issues and then to aim at reducing your identified risks, one step at a time. A good place to start is to improve your own farm's water-use practices and then exploring water stewardship steps that would reduce water risks that your local area faces.

There are many reasons to become a good water steward – be it that you are motivated by an imminent or current water crisis, you anticipate increasing water risk with time, you wish to develop an ethical market advantage or are motivated by a sense of responsibility.

In South Africa the National Water Act envisages public and stakeholder (including business) participation in water management. This may happen through institutions such as the Catchment Management Agencies and Water User Associations, or through less formal water stewardship groups and forums. Water is everyone's business and there is always work to be done, as individual water users or collectively.

*Water, unlike land, is a constant traveller. Its stewardship requires you to look at **where water comes from, how you use it and where it goes to.***

1. Become water aware

2. Understand your farm's water uses and risks

3. Implement best water practice steps at farm-level

4. Become involved in water stewardship beyond the farm fence

5. Contribute to water management in the catchment

Diagram 1: WWF's 5 Water Stewardship steps interpreted into a farm context.

AWS STANDARD AND SUPPLY CHAIN

It is all good and well to be interested in water risks and stewardship opportunities, but where to start? There are several options and tools.

A key one is the AWS water stewardship standard, developed by the Alliance for Water Stewardship. This standard is international, new and unique, in that it focuses on water stewardship, rather than health and safety or ethics. As such, it provides a clear roadmap about questions you can ask about your water use and your water risks. The AWS standard helps any site, whether it is a farm or a factory to improve how water is managed on-site (steps 1-3 as per WWF's Water Stewardship steps) and sets the stage for collective action (step 4). Further efforts are then needed to ensure water risks are managed by working with other catchment stakeholders (step 5).

The standard is available for anyone to use and a formal verification process is under development. As the AWS standard becomes fully operational, some brands and farmers, who have decided that water stewardship is of value to them, may choose to certify their supply chains or their own site(s) to this standard.



The WWF, AWS, M&S and Woolworths pooled together to test the structure and content of the AWS standard for the agricultural sector in the Breede catchment. Nine farms volunteered for this process and went through the guided process of identifying their key water risks and water stewardship opportunities, resulting in a long-term water stewardship plan and an identification of water stewardship opportunities in the greater Ceres area.

This process has shown us that the 6-step standard helps you learn about water issues, but sometimes it is good to have help interpreting the results and knowing how to turn them into useful water stewardship options. WWF is now developing a web-based tool, to give AWS information a more South African and agricultural flavour. It is envisioned that this will help farmers on their water stewardship journey.

There has been widespread concern that the creation of 'yet another' standard is going to add to the workload of farmers, who are already facing multiple standard certifications annually. AWS is looking to help streamline and integrate the different standards with the aim of increasing collaboration and enabling them to become more holistic in their purpose.

Figure 1: AWS diagram guiding the continual improvement through a 6-step process

SUMMARY OF AWS STEPS

The AWS standard can be completed at varying levels of detail and this will be recognised through certification to either adhere to **core** criteria, or, additionally, also to **advanced** criteria.

Figure 2: Summary diagram of core level criteria for each of the 6 steps

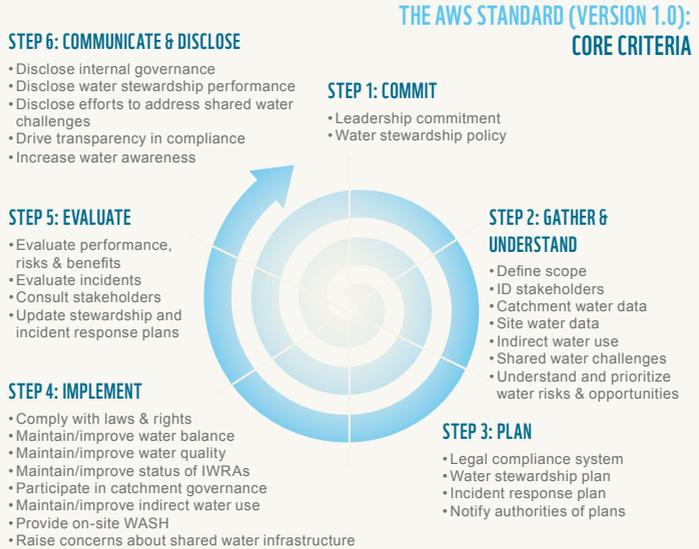
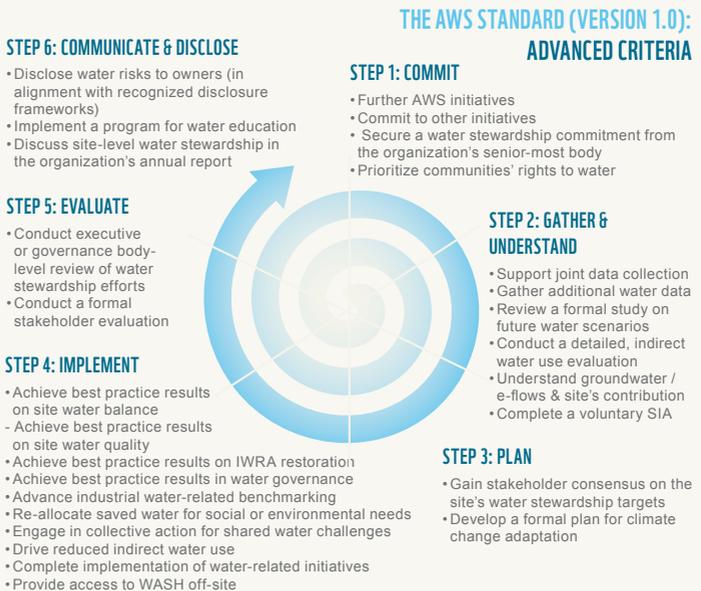


Figure 3: Summary diagram of advanced level criteria for each of the 6 steps



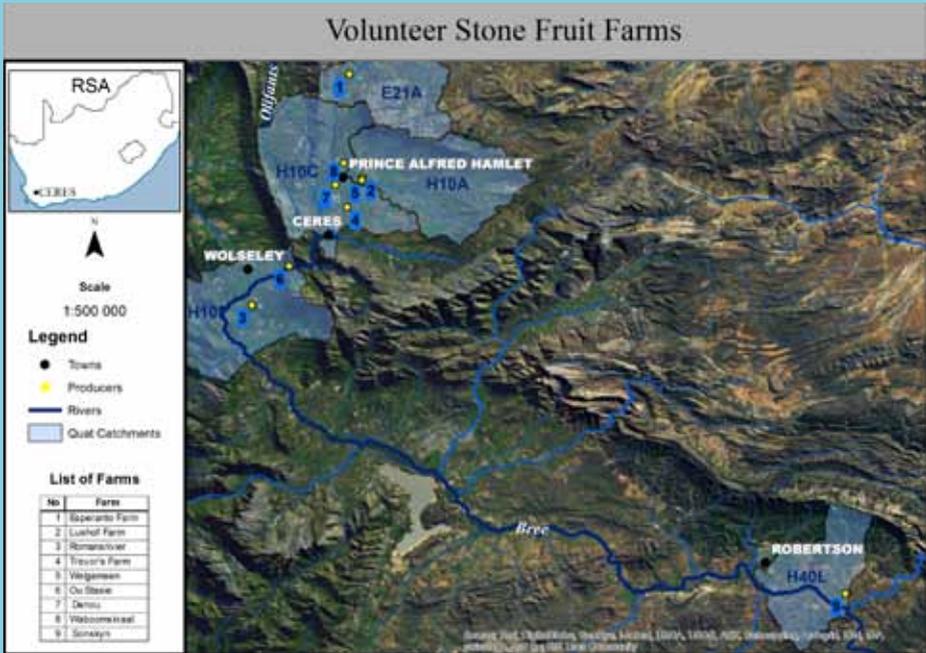


Figure 4: Map of the area

Water quantity - getting the technology right

Three of the nine test farms came to the conclusion that the right technology is absolutely key in achieving efficient irrigation processes. However, such a decision is costly and it requires careful weighing up of options and prioritisations. For both Esperanto and Welgemeen farms it was priority to move from a time-based irrigation process to a flow-based one, so as to have greater control over the actual amount of water that is applied during irrigation schedules. Waboomskraal found it particularly valuable to look into soil moisture probes, to augment

the usual manual pit-and shovel tests. The implementation of two probes has already provided very valuable insights into irrigation optimisation, and the expansion of soil moisture probes into the remainder of the farm forms part of a five year plan.

Water quality - finding the sweet spot

As part of understanding their on-farm water use and risk, Romansrivier measured the water quality of both incoming and draining water at their lowest outgoing drainage point on the

farm boundary. They found that the nutrient levels of their outflowing water were well within South African water quality guidelines for drainage and irrigation water and that it was thus safe for downstream farmers to use. However, they also saw that there was some increase of nutrient levels between their own incoming and outgoing water. They concluded that their amount of fertiliser application had room to improve, as part of their applied fertiliser was literally ‘running down the hill’ – posing a financial waste as well as a contribution to eutrophication risks further downstream. Making this decision included a careful evaluation to avoid putting fruit production at risk through too little fertiliser application. From the 2013 to the 2014 growing season, the farm reduced their fertiliser application by 25kg/ha. It is a brave step that requires a careful look at more water quality tests, fruit production and the bank account to see if Romansrivier has now optimised its fertiliser application rate.



© S DZIKITI

Dealing with social water risk – careful layout of irrigation system makes you less of a sitting duck

Denou farm is situated on the edge of Prince Alfred Hamlet – and that translates into being an easy target for opportunists and frustrated members of society. All too often the farm’s irrigation processes have been hampered by acts of vandalism and theft – affecting sprinklers, taps, electricity lines and the content of pump houses. This year Denou has embarked on a process to redesign part of its irrigation pipelines and moving all taps to safe points on the farm. It means that all taps can be controlled from one key area on the farm that is situated far away from the town’s edge. As part of the process Denou also replaced all leftover asbestos irrigation pipes. Not only does this action improve the health and safety of operations, but it also reduces the leakage rates, commonly associated with outdated asbestos pipes.



© S DZIKITI

Reputational risk – the antidote is to be proactive

Farm Lushof has reached South African media in 2014 – not because of its reputational risk, but because it's very proactive way of promoting its reputational excellence. As part of the WWF and Woolworths media trip for the 2014 World Water Day, farm Lushof was interviewed by the South African agricultural magazine Landbou Weekblad regarding its hi-tech irrigation system.

Lushof's 7 point plan was documented as follows –

1. Plant the right cultivars for your area.
2. Adapt your irrigation technology to your area – Lushof has found small radius microjet sprinklers to suit their farm environment best, maximising plant production while minimising water use.
3. Know your soil type – and irrigate accordingly, using flow meters to measure application and a pressure sensitive system, to ensure the right amount of water is applied.
4. Use new technology, such as soil moisture probes (IT measure) that send continuous streams of data via radio to a centralised system, where managers can interpret the data on their computers and cell phones and react quickly, thus ensuring irrigation efficiency is optimised.
5. Maintenance is irreplaceable – a total of six people are responsible for regular monitoring and maintenance of the system.
6. Set measurable goals – have a flow meter to help document your water use and know your dam content.
7. Test your fruit – fruit with a bit of water stress have a higher sugar content than overwatered fruit. Hence you need to balance your irrigation carefully to get the ideal sugar content out of all fruit, be they grown on sand or loam, and be they drip or microjet irrigated.

As a result of this article, Lushof has received considerable attention and several requests from other farmers to tour and learn from Lushof. This process has significantly minimised Lushof's reputational risk, but staying at the forefront remains key. Lushof already has future plans to reduce the proximity of their orchards to the local Skaap River, which traverses the farm. This move will eliminate orchard-parts that are fungus-prone due to their waterlogged state. Hence it will not create significant production losses, while it will increase the buffer zone of the Skaap River, where it runs through farm Lushof. At the moment the Skaap River, as a tributary to the Breede, has a



low water quality and natural habitat loss from plantings in its flood lines. Allowing some of the natural buffer zone to return to this tributary is a worthy first step at rehabilitating a river that currently has little more function than a drain.

Regulatory risk - keeping a beady eye...

The new South African Water Act of 1998 has fundamentally changed the ownership of water in South Africa. Water that was individually owned in the past is now a national asset under the guardianship of the government, i.e. the Department of Water Affairs and Sanitation. All water users need to register their water use and receive the right to use a particular allocation of water. This allocated amount is verified and validated in catchments like the Breede, Berg and Olifantsdoorn. Water use above the allocated amount can be identified and rectified. Anybody not complying to regulations can of course regard a legal reallocation as a regulatory water risk, as it will impact on production rates and business.

THE NEW SOUTH AFRICAN WATER ACT OF 1998 HAS FUNDAMENTALLY CHANGED THE OWNERSHIP OF WATER IN SOUTH AFRICA. WATER THAT WAS INDIVIDUALLY OWNED IN THE PAST IS NOW A NATIONAL ASSET UNDER THE GUARDIANSHIP OF THE GOVERNMENT

It is at the discretion of the South African government to reallocate water among sectors, depending on perceived needs and financial outputs. The power to do this has at times created strong debates among the Department of Water Affairs and the agricultural sector. Mr Abrahams, both farmer and Breede –Gouritz Catchment Management Agency board member has the rare position of having looked at the water stewardship process as both a farmer and a representative of the water sector. He finds that the water stewardship process, as laid out by the AWS standard, is based on scientific evidence, good recordkeeping and responsible practices. Hence it is a tool to create well-documented cases for farms that are also easy for regulators to assess. He sees water stewardship and specifically the AWS standard as a potentially neutral avenue to take, if there is concern about regulatory risk.

Catchment initiatives in the upper Breede

As the water stewardship project progressed in the Breede, we invited stakeholders in the area to look at water risk and water stewardship options beyond the farm-boundary. A productive discussion led to three identified water risks:

1. Water quality around rapidly growing urban areas (**physical water quality risk**)
2. Lacking access to shared information around water stewardship (**hindering responsible water use**)
3. Alien invasive plants and reduced

available water in the headwaters
(physical water quantity risk)

The identification of these risks was translated into three water stewardship opportunities, that will involve the catchment management agency and that will invite other farmers, the municipality and urban residents to participate.

Overall, agricultural production – and the need for labour- has increased sharply in the Ceres valley, once the rebuilt Koekedouw dam provided a reliable water source in 1998. Increased agricultural production also translates into an increased need for labour. Prince Alfred Hamlet, a little town just north of Ceres, has between 4000 and 5000 inhabitants. The town, like many others in the region, houses the seasonal influx of people that are attracted to work opportunities during harvest time. Many people remain to stay in the valley on a permanent basis. The rapid urban growth has brought to the fore challenges linked to sanitation and high-density livestock keeping in areas that are not safely designated for such purposes. In Prince Alfred Hamlet, many of the sanitation problems and livestock holdings are in close proximity to the local Wabooms River, a tributary to the Breede. Over the next 12 months the aim is to involve all relevant stakeholders in an initiative that will help to educate residents and improve sanitation arrangements, so as to reduce pollution, obtaining municipal support where possible and letting the CMA initiate their plan to closely monitor water quality near Prince Alfred Hamlet.

Alien Plants - thirsty invaders of the South African landscape.

In South Africa alien invasive plants (IAPs) have taken over significant areas of land, choking out other plants and biodiversity, and using much more water than indigenous vegetation. IAPs are estimated to consume about 3.3 billion cubic meters of water per year. This is equivalent to nearly 7% of our river flow. Government programmes such as Working for Water, and NGO programmes such as WWF-SA's Water Balance aim to eradicate IAPs in the landscape, especially in our water source areas.

The farm Romansrivier is held to an agreement with CapeNature to invest R100 000 annually in alien plant clearing activities in the hill slopes of their farm – thus ensuring good runoff from this upper Breede catchment. In their experience, this is a never-ending task if you operate at a farm-scale, as seeds blow across from neighbouring areas. Proper alien clearing, and the resulting assurance of good water supply to downstream reaches, is a group initiative that will require a coordinated clearing approach. Initial funding from Woolworths and M&S will see to the initial engagement and planning phase of a clearing initiative in this area.

The final step is to develop and make available the web-based tool that will hopefully provide easy access to water stewardship information that is relevant to agriculture in South Africa. The tool will start off being focussed on Western Cape information, but the plan is to further make it suitable for farmers throughout South Africa.

WATER STEWARDSHIP BEYOND STONE FRUIT IN THE BREEDE

The concept of water stewardship is international – and as such the AWS standard was also designed to be used worldwide by many different sectors, such as textiles and mining, for example. As the AWS standard matures and expands, one needs to ask what water stewardship might look like for South Africa, beyond the scope of agriculture in the Breede. Below are some thoughts:

Agriculture beyond the Breede catchment

Water stewardship is easily applicable to all agricultural sectors, including irrigated and rain-fed crop production, as well as livestock farming. That is mainly attributed to the high dependence of agriculture on water and the potential to pollute water resources. A tool like the AWS standard provides a well-laid out avenue for members of the agricultural sector to engage with requirements by the water sector. However, most farmers already feel pressed by multiple national and international health and safety or ethics standards, and some sectors already have sustainability initiatives, such as fruit and wine (Biodiversity and Wine Initiative, BWI, with over 180 members) and the sugar industry (Sustainable Sugarcane Farm Management System, SusFarMS, with 47 000 subscribers). For the sake of water stewardship to become well integrated into the agricultural sector, we find it particularly important to try and streamline these standards and initiatives. We hope it will take the needless repetition out of certification,

to allow farmers to get along with growing food – in a manner that is responsible to consumers, the environment and coming generations.

Forestry

Much of the forestry sector in South Africa subscribes to the Forest Stewardship Council™ (FSC™). For over 15 years the FSC has advocated a voluntary process to improve water use – namely by taking out trees alongside water bodies and leaving a 30 metre buffer zone around every wetland and river. This practice is well-engrained into this sector, but essentially it is only one aspect to consider within the much-broader water stewardship process. An introduction of water stewardship into the forestry sector would encourage the

ALLOW FARMERS TO GET ALONG WITH GROWING FOOD - IN A MANNER THAT IS RESPONSIBLE TO CONSUMERS, THE ENVIRONMENT AND COMING GENERATIONS.

sector to look at a much wider spectrum of water issues – in more technical detail. Foresters would need to demonstrate that their impacts beyond the plantation boundary are well managed, especially escaping alien plants which can have a devastating impact on whole catchments.

Mining

Mining is generally seen as a seriously negative impact on the local landscape and catchment, and it's difficult to envisage a mine holding a water stewardship certificate. Gold and coal mines in South Africa have received a lot

of negative publicity linked to poorly managed acid mine drainage. However, within each sector there is potential for better production, minimising impacts, internalising environmental costs and working with neighbours to ensure better water security for all. What if practices include recycling of old mine dumps, instead of digging new holes in the earth? What if a mine was committed to purify its effluent (to national guideline levels) for a timespan of multiple decades, extending way beyond the active lifetime of the mine? Would such levels of responsibility warrant an acknowledgement of water stewardship?

© K SCHACHTSCHNEIDER



Koekedouw Dam, Ceres

ADDITIONAL INFORMATION

Where you get additional information:

WATER RISK:

waterriskfilter.panda.org

WATER STEWARDSHIP:

AWS

www.allianceforwaterstewardship.org

WWF

panda.org/ws

WATER AND AGRICULTURE:

www.wrc.org.za

FOR MORE INFORMATION ABOUT WATER STEWARDSHIP EFFORTS IN THE BREEDE:

<http://corporate.marksandspencer.com/blog/stories/marks-and-spencer-water-stewardship>

DIRECT CONTACT:

Klaudia Schachtschneider,
Water Stewardship Programme,
WWF-SA:
kschacht@wwf.org.za

Claire Bramley,
Water Stewardship Programme,
WWF-UK:
cbramley@wwf.org.uk



WWF South Africa

FACEBOOK

Join us on
facebook.com/WWFSA

WEBSITE

For further information
visit wwf.org.za



TWITTER

Get timely messages at
twitter.com/wwfsouthafrica

ACT NOW

Find out what you can do
wwf.org.za/actnow



Why we are here

To stop the degradation of the planet's natural environment and
to build a future in which humans live in harmony with nature.

www.wwf.org.za