



**Western Cape
Government**

WESTERN CAPE PROVINCIAL AGRICULTURAL DISASTER RISK ASSESSMENT REPORT: NOVEMBER 2022



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ABBREVIATIONS

4 th IR	Fourth Industrial Revolution
APSD	Agricultural Producer Support and Development
CK	Central Karoo
CW	Cape Winelands
DALRRD	Department of Agriculture, Land Reform and Rural Development
DRR	Disaster Risk Reduction
GR	Garden Route
GPS	Global Positioning System
LSU	Large Stock Unit
MDMC	Municipal Disaster Management Centre
NDMC	National Disaster Management Centre
NDVI	Normalized Difference Vegetation Index
PASG	Percentage of Annual Seasonal Greenness
PDMC	Provincial Disaster Management Centre
RTDS	Research and Technology Development Services
SRUM	Sustainable Resource Use and Management
VCI	Vegetation Condition Index
WCDOA	Western Cape Department of Agriculture
WC	West Coast
WCP	Western Cape Province
WUA	Water Users Association

1. SUMMARY

In order to adequately prepare and respond to the needs of farmers facing disasters, the Western Cape Department of Agriculture established its Disaster Risk Reduction (DRR) programme. The DRR Programme would focus on ensuring that farmers receive adequate support to prevent, mitigate and reduce the impact of disasters. Previously the department's primary focus was on providing post disaster recovery, which proved costly and unsustainable. In addition to the drought, farmers have had to deal with floods, fires, hail, avian influenza and more recently locusts. Climate change has resulted in the increase in both the frequency and intensity of disasters. In his 2022 Medium Term Budget Policy Statement, Minister Enoch Godongwana highlighted the impact of natural disasters on the economic recovery of South Africa. Quote, "Our structural challenges have been exacerbated by new ones, including the global economic slowdown, high energy and food prices; and the destruction caused by *natural disasters* such as the recent floods." Unquote.

To better build resilience within the farming sector, the DRR officials needed to understand not only the impact of the drought on the veld condition, but more importantly the impact of the drought and other disasters on farmers, their families and their agri-workers.

Initially the department conducted a 'drought tour', which allowed the department to assess and categorize the veld conditions across the Western Cape Province (WCP). This veld assessment forms a crucial part of the long-term dataset and it is a good indicator of a slow-onset drought. Based on the outcomes of the veld assessment, the department was able to determine which farmers should receive drought support. Should the veld conditions recover or deteriorate over time, the department could reclassify the area and accordingly adjust the required drought support.

Whilst the veld assessments provided a good indication of the veld condition, it failed to take into account the impact of the drought on farmers. What was needed was a farmer-centred approach. By engaging with farmers and other key stakeholders, the department would be in a better position to fully understand what interventions were needed to mitigate against future disasters. Our stakeholder engagements allowed

farmers to engage openly with DRR officials and together, we were able to identify key enablers and area specific interventions.

The combination of the veld assessments and the stakeholder engagements resulted in the establishment of the provincial disaster risk assessments.

2. PURPOSE

To demonstrate the disaster interventions and the categorisation of drought areas based on the 2022 Veld Assessments (March & September 2022) and the stakeholder engagements.

3. MOTIVATION

During 2022, the department conducted its veld assessments in both the winter and summer rainfall regions of the Western Cape (5 districts) and its stakeholder engagements in all five districts. The outcomes of these veld assessments and stakeholder engagements contributed significantly to the decision-making process, specifically in relation to the provision of drought support.

Whereas the veld assessments focuses exclusively on the condition of the veld, the stakeholder engagements provides the WCDoA's disaster risk reduction programme, the PDMC, Organised Agriculture and Municipal Disaster Management Centre staff the opportunity to understand the impact of the drought on the farmers, their families, agri-workers and the farming community. More importantly, as a collective, we were able to discuss, formulate and implement area specific disaster risk-reduction measures.

The department recognises that the persistent drought has had a devastating impact on not only the veld conditions across the province, but also on the farming community at large. It is thus vital that we implement projects and programmes that recognises the significant impact of climate change on both the frequency and intensity of disasters. Climate change has altered the agricultural landscape and to ensure that the Disaster Risk Reduction Programme is better prepared to respond to the effects of climate change, the Department's climate change specialist, Professor Stephanie Midgley, forms an integral part of the provincial disaster risk assessments.

These disaster risk assessments play a crucial role in assisting the department to direct its limited resources to beneficiaries who are most in need. Whilst the veld assessments could be utilised as a decision making tool, it was too narrowly focused on the drought and its impact on the veld. The DRR's farmer-centred approach resulted in the evolution from veld assessment to disaster risk assessment, incorporating the veld assessments, M&E visits and stakeholder engagements.

4. INTRODUCTION

Over the last couple of years, the Western Cape Department of Agriculture has experienced an increase in both the frequency and intensity of natural disasters. The prolonged drought, which is in its ninth year, has had a devastating impact on not only the agricultural sector, but on the broader economy as well. The May 2021 flash floods experienced by farmers in the Overberg and Cape Winelands districts has only exacerbated the current struggles of the Western Cape farmers. The 2017/2018 Garden Route veld fires has not only caused major agricultural infrastructure damage, but also sadly claimed the lives of 16 people. Additionally, farmers are having to deal with large locust swarms, which have proven very difficult to contain. It is vital that we view these locust infestations in the context of the ongoing drought. The areas currently experiencing locust outbreaks are the very areas that have been gripped in a 9-year drought.

The department recognises the role that climate change is playing within the agricultural landscape and as such, its dedicated Disaster Risk Reduction (DRR) Programme is working with all stakeholders to implement risk-reduction and mitigation strategies within the agricultural sector.

The provincial risk assessments, a combination of the department's veld assessments and stakeholder engagements, is proving to be a valuable tool in ensuring that the Department's Disaster Risk Reduction Programme is responsive to the needs of its farmers. Additionally, the successful implementation of the provincial risk assessments, has significantly contributed to relationship building between the department and all its stakeholders.

5. PROVINCIAL RISK ASSESSMENTS

5.1 Section A: Stakeholder Engagements

5.1.1 Introduction

The success of an organisation must be measured by the ability of the organisation to respond adequately and timeously to the needs of its key stakeholders. Within a disaster management context, any delays in responding to the needs of one's stakeholders could have dire consequences.

Whilst the veld assessment is an effective tool to identify the veld conditions, it fails to take into account the impact of the drought and other disasters on farmers, their families and their staff (agri-workers). What was needed was a farmer-centred approach. Critical to a farmer-centred approach, is recognising that every intervention must be geared towards supporting farmers and building their resilience within the agricultural community

The stakeholder engagements allows the department to hear first-hand the impact of the drought on the livelihoods of the beneficiaries, ascertain the impact of the current support initiatives on the farming community and how the Department, specifically the Disaster Risk Reduction (DRR) Office, could better support the farming community with respect to disasters.

5.1.2 Climate Change

The importance and impact of Climate Change within the agricultural sector cannot be overstated. Hence, the department's climate change specialist, professor Stephanie Midgley, forms an integral part of the stakeholder engagements. There has been an increase in both the frequency and intensity of disasters affecting the agricultural sectors. Engaging farmers on climate change issues resulted in very open and frank discussions between the various role-players.

Farmers re-iterated their commitment to farming sustainably within a climate change environment. Professor Midgley indicated that the interaction with the farmers and listening to their experiences has been fruitful in that she has a very good understanding of the climate change knowledge and perceptions existing within the agricultural space.

The DRR programme and the Climate Change Unit will continue to work together to ensure that we position ourselves to adequately support our farmers, specifically within a climate change and disaster management environment.

5.1.3 Engagements

During the months of February 2022 to August 2022, the DRR programme undertook stakeholder engagements in all five (5) Western Cape districts. Whilst this process is both taxing and exhaustive, the insights gained from personally interacting with farmers, their families and workers, proved invaluable.

Listening to personal accounts of how the drought and other disasters has affected farmers, only serves to motivate us as civil servants to want to do more. Whilst the ongoing drought has caused severe economic loss within the agricultural community, it has also provided an opportunity for the Western Cape Department of Agriculture, through its Disaster Risk Reduction programme, to advance some of the core values of the Western Cape Government. These values include caring, responsiveness, innovation and competence. Based on the feedback from our farmers, we believe that the Western Cape Department of Agriculture is living up to these values.

During these stakeholder engagements, the DRR and PDMC officials reiterated the Department's and both NDMC and PDMC's renewed focus on risk reduction and mitigation strategies. The department is implementing a number of interventions, including but not limited to:

- I. River protection works.
- II. Alien clearing projects
- III. Seed projects
- IV. Fencing infrastructure projects
- V. Weather Station installations

To ensure that the department implements area specific projects, the department's DRR office utilised the Hazard, Vulnerability and Capacity (HVC) methodology. This methodology ensures that stakeholders themselves identify the hazards affecting them, their own vulnerabilities and their capacity to effectively deal with the identified hazards.

The outcomes of this exercise ensured that the department implemented projects developed by the farmers themselves.

5.1.3.1 Garden Route District Stakeholder Engagement

Due to the timing of the engagement, many farmers could unfortunately not be present. All those in attendance agreed that the department should re-visit the district at a more opportune time. Those present however, engaged on various topics including climate change and how it has affected farming in the region. The need for ongoing governmental support to farmers was highlighted as a pre-requisite if farmers were going to 'survive' the pro-longed drought. Issues of concern included the high input costs of production including the costs of diesel and electricity, market access and the effects of disasters on farming.

All acknowledged that the ongoing drought support in its current form is not economically sustainable. Whilst this type of support is needed in the short-term, from a longer-term perspective, alternative methods of disaster prevention and mitigation must be developed and implemented.

In addition to the risk assessment, the department's Disaster Risk Reduction officials engaged with farmers, organised agriculture (Agri-WC) and locust expert Dr Gerhard Verdoorn around the impending September 2022 locust infestation. For the Garden Route District (in particular the Little Karoo) locust infestations is not a regular occurrence. As such, the earlier, though minor, locust outbreak in the region was an indication of what the region could expect over the next couple of months. Together with the Department, stakeholders committed to working together to ensure that the Little Karoo farmers are prepared for the impending locust outbreak. The following shortcomings needed to be addressed to ensure that the District is prepared for any locust infestation:

1. Insufficient locust trained personnel.
2. Lack of locust spraying equipment.
3. Concerns around the spraying of pesticides in bio-sensitive areas.

In response, the DRR team developed and implemented the Locust Preparedness Plan. This plan outlined what needed to be done in all districts to mitigate the impact of locusts

in the Province. To date, the department has addressed all the shortcoming highlighted by the farmers in the Garden Route.

5.1.3.2 Overberg District Stakeholder Engagement

The risk assessment in the Overberg focussed on two aspects;

1. M&E of Overberg drought/fodder beneficiaries.
2. Engagement with farmers in the Swellendam area. Previous risk assessments focussed primarily on farmers located in drought areas. Engaging with farmers located 'outside' of the drought areas would enable the Disaster Risk Reduction officials to hear first-hand how climate change and disasters in general are affecting the Swellendam farmers.

The M&E of drought beneficiaries focussed predominantly on the unsustainability of the current drought support model. The farmers agreed that providing fodder support was not sustainable and fully supported the department's drive towards risk-reduction and mitigation strategies. Drought beneficiaries expressed their gratitude for the department's drought-support, without which many of them would have needed to cease farming.

The pro-longed drought is having a devastating impact on the economic viability of not only farmers, but also the broader farming community. Employment within the agriculture sector has especially been negatively impacted by the pro-longed drought. With the drop in production levels, farmers in the region are looking at alternative sources of income. Predation and the lack of predation management places additional stress on the viability of livestock farmers. The DRR unit must prioritise predation management, not only in the Overberg region, but also throughout the province. Farmers indicated that they lose up to 30% of their livestock to predation.

The risk assessment with the Swellendam farmers focussed primarily on identifying the hazards, which poses the biggest risk to farming in that area. Alien plant species, fires and floods were identified and the DRR unit needs to develop and implement projects, which could best mitigate or reduce the impact of these hazards. Additionally, any intervention, which would reduce the need for environmental impact assessments (EIA) would be welcomed. What is needed is a plan similar to that of a river Maintenance and

Management Plan (rMMP). The department will engage with relevant stakeholders to ensure that farmers continue to receive the necessary disaster management support.

5.1.3.3 Central Karoo District Stakeholder Engagement

The risk assessment with the Central Karoo farmers were conducted over a period of three (3) days. Engagements included the identification of the hazards, vulnerabilities and capacity (HVC) of farmers in Laingsburg and Murraysburg and a locust workshop in Beaufort West.

Farmers in the Central Karoo continue to farm under extremely challenging conditions as the drought is now in its ninth (9th) year. The department continues to provide drought and fodder support to all qualifying farmers in the Central Karoo. During the 2022/23 financial year, the Western Cape Department of Agriculture supported 645 farmers over a period of three (3) months.

With a renewed focus on risk-reduction and mitigation, the DRR team engaged with farmers utilising the hazard, vulnerability and capacity (HVC) methodology.

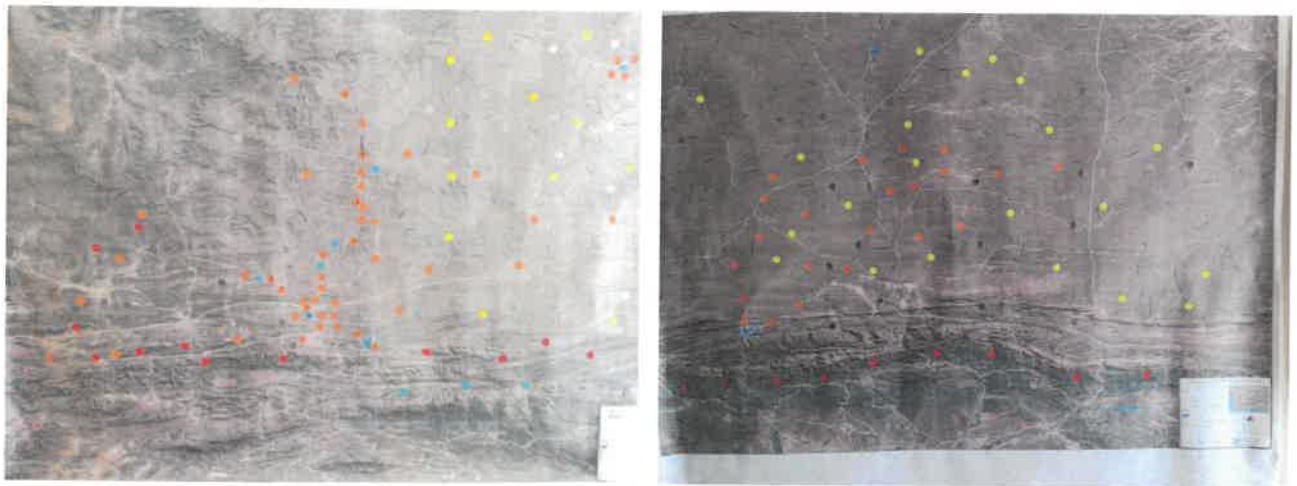
Laingsburg Farmers Engagement

Activity 1: Hazard Identification

Laingsburg Hazard Mapping Activity



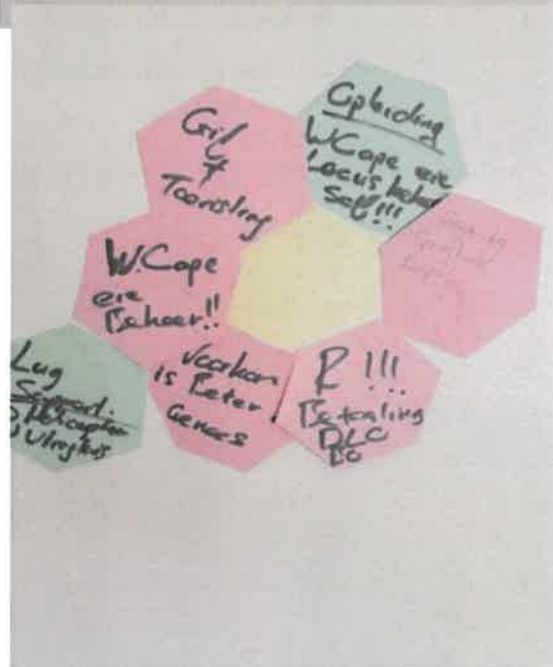
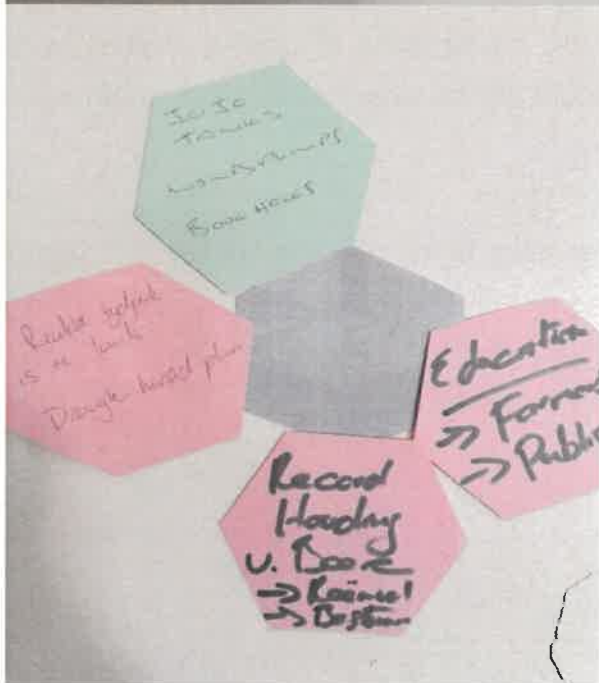
Activity 1 Outcome:



The hazards affecting farmers in the Laingsburg Municipality as identified by the participants:

- **Orange:** prosopis, predators (jackals/rooikat), poor roads, vandalism, looting
- **Yellow:** Pests (locusts)
- **Red:** Fire
- **Blue:** Flood
- **Silver:** Drought

Laingsburg VC identification



A number of projects were identified to deal with each of the hazards.

- Dogs
 - This is a problem, especially in the commonages. These dogs tend to prey on livestock and farmers can ill-afford any losses.
 - Fencing was identified as a possible solution for both predation and crop rotation.
 - There has to be engagement with SAPS, SPCA, the municipality and the Education department. This would allow for all the stakeholders to clarify their roles when dealing with the problem of dogs killing livestock.
- Locusts
 - Education and training would ensure that the district is ready to combat the impending locust infestation.
 - Access to equipment and chemicals.
 - The payment of locust control teams by the National Department of Agriculture.
 - One suggestion was to shift the responsibility of paying workers to the WCDoA. Unfortunately, this would not be possible, as this function resides within the National department.
- Additional projects must be developed to mitigate the drought, fire hazards and any possible flooding.

MURRAYSBURG COMMONAGE FARMERS ENGAGEMENT

Activity 1: Hazard Identification

Murraysburg Hazard Identification



Activity 2: Vulnerability, Capacity and Project Identification

Murraysburg VC and Project Identification



Activity 1&2 Outcome: hazard, vulnerability & Capacity identification

Murraysburg VC and Project Identification Outcomes



- The hazards affecting the Murraysburg Commonage farmers, as identified by the participants:
 - **Orange:** Other (prosopis, predators)
 - **Yellow:** Pests (locusts)
 - **Silver:** Drought
 - **Red:** Fire
 - **Blue:** Flood
- Projects Identified
 - Projects related to ensuring that the Murraysburg Community is better prepared in the event of a fire was proposed. These included the supply of fire vehicles and equipment, establishment and maintaining of fire-breaks and the training of relevant staff.
 - Projects related to the locusts were highlighted as a possible means to assist with the creation of employment or economic activities in the area. The DDR unit will

engage with the Central Karoo SRUM Manager regarding the training of locust personnel in the area.

- o Many of the farmers farm with pigs, and even-though disaster funding does not include support for pigs, the DRR officials will engage with the relevant officials to ensure that farmers can access the proper support structures within the department.
- o Ongoing engagement with the Murraysburg Commonage farmers is necessary, as many of the issues raised, are outside of the scope of the DRR Unit.

BEAUFORT WEST, BEAUFORT WEST MUNICIPALITY

Locust Debriefing

- Stakeholders represented included officials from the WCDoA DRR programme, Central Karoo and Garden Route District officials, DALRRD Officials, District Locust Officers (DLO), aerial spraying teams, Organised Agriculture, Provincial and Municipal Disaster Management Centre Officials (PDMC/MDMC).
- The DLO's thanked the WCDoA for providing the DLO's and control teams with the much needed chemicals, spraying equipment and personal protective clothing (PPE).
 - I. The WCDoA provided PPE and spraying equipment to all locust control teams. In total the WCDoA purchased 114 sprayers and 123 PPE sets.
 - II. Additionally the department purchased 11 800 litres of the Decis pesticide.
- An area of concern was the prevention of locust control within the National Parks. The Parks have been flagged as a breeding area for locusts and as such, does pose a significant risk for farmers. Once the swarms are formed, controlling the locusts becomes significantly more difficult.
 - I. The department has had several discussions with representatives from the various National Parks to raise its concerns.
 - II. At this point in time however, the status quo remains. Discussions are ongoing to try to find an amicable solution.

- The non-payment by the National Office to the locust control teams have been flagged as the biggest risk to controlling the impending locust outbreak in 2022.
 - I. Many of the workers had not received payment for work done since November 2021.
 - II. Locust control workers have 'quit' and unless the National department pays the control teams what is due to them, the department will face a harsh reality of not having personnel to perform any locust control.
 - III. The DRR officials assured all the stakeholders that this matter has been escalated to the Office of the Deputy Director General at the WCDoA as well as Agri-SA and Agri-WC. Additionally this matter has been raised at both the Provincial and National Joint Operations Committees (JOC's)
- The aerial spraying pilots emphasised the following:
 - I. Pilots must be trusted to spray or control locusts as and when they encounter them.
 - II. 'Pin drops' of locust swarm locations has to be verified before they fly out to perform the aerial spraying.
 - III. This is especially crucial when spraying near fruit crops and bio-diversity sensitive areas.
 - IV. There must be better communication between the various national and provincial officials in order to facilitate economical and efficient aerial spraying.
- The pilots committed themselves to working with both the National and provincial office to ensure preparedness for the impending locust infestation.
- The PDMC emphasised the need to strengthen the institutional capacity within the department to ensure that all stakeholders fully understand their roles when having to deal with locusts.
 - I. This included the development of a Provincial Locust Control Mitigation Plan.
 - At the time of this report, the Provincial Locust Mitigation Plan is completed.
 - II. Relevant SOP's.

- Jody Wentzel, the sub-programme manager for the disaster risk reduction at the WCDoA assured all the stakeholders present that the department would provide all the necessary support to the locust control teams, to ensure that the province is sufficiently prepared for any locust infestation.
- Leslie Marthinussen, from the WCDoA emphasised the need to work with officials from the Eastern Cape (EC) and Northern Cape (NC), as any locusts, which are not controlled in those provinces, will have a negative impact on the Western Cape (WC).

In addition to the stakeholder engagements, the DRR team, Together with officials from the National Department of Agriculture, Land Reform and Rural Development (DALRRD), the Provincial Disaster Management Centre (PDMC) and the Municipal Disaster Management Centre (MDMC) visited Mr Jan Bostander, a drought beneficiary farming in Beaufort West.

Mr Bostander has been a drought beneficiary for a number of years and shared his appreciation for the ongoing support from the department. He is however frustrated with interrupted support. The prolonged drought has had a devastating effect on small-scale farmers and as such, the interrupted support has made planning very difficult. We informed Mr Bostander that the department will continue to support drought affected farmers for as long as possible. The current support model however is not sustainable. The department has shifted its focus to risk reduction and mitigation. Farmers are encouraged to implement projects which are more sustainable and which ultimately result in a more resilient agricultural sector.

Mr Bostander is also part of the locust control team in the Beaufort West area and is on the frontline of the department's fight against the locust infestations. The little veld that had recovered, due to the recent rains, had all but been devoured by the locust swarms. He has however indicated that he is more than determined to see this period through and together with the department's support, he is confident that he will overcome the current challenges.

Based on the feedback from the participants, the DRR team will continue to implement its activity based risk assessments. This methodology allowed farmers and other stakeholders to engage more meaningfully with each other as well as with Departmental officials. It was agreed that participants would re-evaluate the identified projects and forward a priority list to the DRR Officials. Follow-up workshops will be conducted to ensure that the work done during these engagements will bear fruit.

5.1.3.4 Cape Winelands District Stakeholder Engagement

Previously, the main focus of the Disaster Risk Reduction Office centred around the drought and the farmers located within those areas. As such, little to no engagement had taken place with many of the Cape Winelands farmers.

As this was our first engagement with many of the Montague farmers, it was critical that this engagement be used to lay the foundation for future initiatives. All the stakeholders attending the risk assessments agreed that it was imperative that they focus on risk reduction and mitigation strategies, which would contribute significantly to a more resilient and robust agricultural sector.

In addition, professor Stephanie Midgley engaged with the Montague farmers on Climate Change and its impact on both farming and disasters. All stakeholders agreed that the department must continue engaging with them on climate change and its impact.

The following emerged from our engagement with the Cape Winelands (Montague) farmers.

- There was a definite change in the microclimate with less south-easterly cold fronts that traditionally brought rain to the area. However, the lack of weather stations makes it difficult to quantify these findings and do any form of modelling to predict future trends. Farmers are not able to make use of the private weather stations in the area due to the extremely high cost of the data.

- Much of the existing irrigation schemes infrastructure (open canals and furrows) has exceeded their design lifetime (in some cases with more than 20 years). Water losses is up to 60% in some areas. There is an urgent need is to convert these open canals to closed pipe systems. To address this challenge, what is required is a large-scale assessment, that will allow the department to understand and develop solutions, priorities and budgets to do short, medium and long-term planning.
- Population growth and urbanisation results in greater poverty in towns. Due to high input costs, farmers cannot only focus on producing food at an affordable price for the local market. The need has arisen to explore or even focus on the export market.
- The lack of boreholes, coupled with the lack of borehole monitoring, is a huge risk, especially in areas where there is no irrigation scheme available. Due to a lack of data, modelling of future trends is impossible, placing the farmers at even higher risk.
- Further research is required on the water demands required during the different physiological growth stadia of fruit to improve water management.
- It is extremely costly (and time consuming) to get environmental approval to do regular dam maintenance (removal of silt) and general maintenance on water infrastructure (furrows & canals). A blanket approval like the river Maintenance & Management Plans (rMMP) is required.
- Hortgro has done extensive studies on the socio-economic risks for the "if we do nothing scenario" in terms of climate change adaptation; this information must be obtained and shared with farmers and policy makers.
- Government has ceased doing 'fruit' research on its research farms and as a result, the costs to access relevant evidence based information has become significantly more expensive. Improved collaboration and support must be provided to existing research initiatives on private farms so that information becomes more freely available or accessible i.e. adaptation towards more drought resistant rootstock.
- Greater external challenges that the farmers do not have any control over but has a direct influence on his/her production and use of natural resources were

identified i.e. failures to manage harbours, Eskom, closing of Tiger Brands in Ashton (the latter receives 2500ha of produce from local farmers).

- Farmers have expressed the challenges around controlling the feral pigs and baboons in the area. These animals cause extensive damage to crops, which have a detrimental effect on the farmers' ability to farm economically. One suggestion was to install more camera traps.
- A quick overview was provided to farmers concerning the procedures and steps once a disaster has occurred (i.e. floods). Who to contact first, the flow of information, collection of data, etc. An electronic rapid assessment tool (i.e. Google Drive) should be developed that is easy to understand and easily accessible by all farmers.

The following projects/priorities were identified:

1. Weather stations and Loggers to do groundwater monitoring (linked to weather stations)
2. The appointment of a service provider to:
 - Develop a maintenance and management plan for dams and other related water infrastructure.
 - Assess the conditions of the existing open channels. This could create job opportunities, as the maintenance or replacement work is labour intensive.
 - Drilling of boreholes to improve water security to households in specific catchment areas.

5.1.3.5 West Coast District Stakeholder Engagement

The DRR officials, together with the Western Cape Department of Agriculture district officials and the Provincial Disaster Management Centre (PDMC), visited a number of drought/fodder beneficiaries. In total, we engaged with eight (8) beneficiaries, which in turn allowed us to better understand the challenges our farmers are faced with on a daily basis.

All the beneficiaries expressed their gratitude to the department for the support. Many of the farmers felt that the prolonged drought, coupled with other challenges, not only negatively affected their production levels, but also the economic viability farming itself. Our engagement and discussions highlighted several challenges, which if addressed, would allow the West Coast farmers to not only survive the current drought, but also to thrive and build resilience within the farming community.

Challenges/Opportunities identified:

1. Farmers are adapting to the drought by farming with breeds, which are better suited to the harsh conditions.
2. Many of the farmers are selling off 'excess' livestock and only holding onto their core-herds. This places less demand on the veld, which has not recovered due to insufficient rains.
3. The lack of predation management continues to have a negative impact on livestock numbers. Some farmers have indicated losses of up to 30% due to predation. The jackal remains the main source of concern. Better collaboration between all stakeholders is the key to managing predation.
4. The department must continue to invest in fencing projects, as it allows farmers to perform rotational grazing and it assists with predation management.
5. The latest "veld report" indicated that the Matzikama Local Municipality, in the absence of any rain, would revert to being extremely critically dry.

The department will continue to work with the Matzikama farmers to ensure that they receive the kind of assistance, which is relevant to their needs. In addition to the drought support provided to the Matzikama farmers, the department, in conjunction with farmers, will develop and implement area specific projects, thereby responding effectively and efficiently to the needs of the West Coast farmers.

5.2 SECTION B: Veld Assessments

5.2.1 Introduction

As mentioned earlier, the ongoing drought has had a devastating impact on the agricultural community. As a result of the ongoing drought, the veld especially has suffered extensive damage and in 2018, the department developed its veld condition map. Based on the veld assessments performed by the department's plant scientists, the department was able to document the conditions of the veld across the province. The 2018 conditions was used as a baseline. This would enable the department to have a reference with which to compare all future veld conditions. The department could then ascertain whether the veld conditions have improved or deteriorated over time. This veld assessment is a crucial part of the long-term dataset and is a good indicator of a slow-onset drought.

Since 2018, the department has produced veld maps for 2019, 2020, 2021 and 2022. From these assessments, we see an improvement in the veld conditions across most parts of the Western Cape Province. Concurrently, the veld condition maps highlights the areas, which have not improved or have deteriorated over time. This allows the DRR programme to target these vulnerable areas, thereby utilising its scarce resources more effectively and efficiently.

Additionally, the veld assessments enables the department to implement specific risk reduction and mitigation interventions for each area.

5.2.2 Veld Categorisation

Key: Drought status/condition according to vegetation:

Extremely critical (score 1)	Critical (score 2)	Very Dry (score 3)	Dry (score 4)	Fair (score 5)	Good (score 5+)
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1. Extremely Critically Dry

- The extremely critically dry areas are the plants that are black and some already turning white.
- This means that that the veld is in the worst possible condition with little to no signs of life.

- The extremely critical dry areas, marked red, would require monthly support, as the conditions are highly unfavourable in terms of the veld conditions and water availability.

2. Critically Dry

- The critically dry areas, in orange, are areas that are still affected by the current drought conditions.
- These areas however have experienced very little plant growth.
- The critically dry areas however still require support every month, as the conditions are highly unfavourable in terms of the veld conditions and water availability.

3. Very Dry

- Majority of the plants are living, but are very dry.
- The plants do not break easily and there are still leaves present, although brown.
- Little to no flowers present are visible. Grasses are dry (yellow), but not yet black
- The very dry areas require support every alternate month.

4. Dry, with signs of recovery

- Majority of the plants in the area are dry, with most of them bearing leaves.
- The area consists of plants that are still green, some have flowers and show signs of regrowth.

5. Fair Condition

- The area is still in a fair condition with most of the plants green with flowers and regrowth.
- Grasses are dry, but still bear culms and inflorescence.

6. Good condition (5+)

- Areas listed in the "green" column are classified as good, meaning that the veld conditions have improved to such an extent that the farmers can be removed from the drought support.

Should the veld conditions in any area in the Province deteriorate or improve over time, the department will reclassify the area and adjust the required drought support accordingly.

5.2.3 Evaluation Criteria

The department performs two (2) veld assessments annually. During the March/April period, the department focusses on the summer rainfall regions, when optimum veld conditions are expected at the end of its rainfall season, and similarly during August/September, the department focusses on the winter rainfall regions, when optimum veld conditions are expected at the end of its rainfall season.

The following criteria was used to determine this evaluation:

- Climate
 - Rainfall history (monthly precipitation records)
 - Seasonal rainfall distribution (NDVI and PASG)
- Rangeland
 - Quality of grazing
 - Grazing capacity and production potential
 - Reserves available
 - Conservation status
 - Cover/trampling
 - Vegetation Conditions Index (VCI)
- Livestock¹
 - Condition
 - Percentage stock reduction at the time of drought-evaluation
 - Dependence of livestock on planted pastures
- Water¹
 - Water-table

¹Livestock and water was used as supportive information to the other criteria used.

- o Boreholes.

5.2.4 Supporting Documentation

The Vegetation Condition Index (VCI) compares the current NDVI to the range of values observed in the same period in previous years. The VCI is expressed in % and gives an idea of where the observed value is situated between the extreme values (minimum and maximum) of the previous years. Lower and higher values indicate bad and good vegetation state conditions, respectively. This was the map preferred by the drought-relief prioritisation committee. See the VCI map in Appendix B.

5.2.5 March 2022 (summer rainfall areas)

5.2.5.1 Central Karoo District

Table 1. List of areas visited in the Central Karoo district in order of visit with score of the individual stops and the status for the district

Areas visited	District	Scoring
1. Matjiesfontein	Laingsburg (winter rainfall)	5-
2. Soutkloof	Laingsburg (winter rainfall)	5
3. Dwars in die Weg	Laingsburg (winter rainfall)	5+
4. Klipfontein	Moordenaarskaroo	5+
5. Sandkraal	Moordenaarskaroo	5+
6. Beentjieshoogte	Moordenaarskaroo	5+
7. Excelsior	Moordenaarskaroo	5+
8. Grooifontein	Koup	5+

9. Vereniging	Koup	5+
10. Spitskop	Koup	5+
11. Buffelsvlei	Koup	5+
12. Vaalleegte	Koup	5+
13. Wamakerskraal	Koup	5+
14. Swartbult	Prince Albert	5
15. Combrinskraal	Prince Albert	5+
16. Abrahamskraal	Prince Albert	5+
17. Nelskraal	Beaufort West - West	4+
18. Steynskraal	Beaufort West - West	5
19. Lemoenfontein	Beaufort West - North	5+
20. Wittehart	Beaufort West - North	5+
21. Dunedin	Beaufort West - North	5+
22. Booiskraal	Beaufort West - North	5+
23. Hillandale	Beaufort West - North	5+
24. Content	Beaufort West - North	5+
25. Elandsfontein	Beaufort West - North	5
26. Waterval	Murraysburg – Driehoeksfontein	5-
27. Driehoeksfontein	Murraysburg – Driehoeksfontein	5+
28. Jonkersnek	Murraysburg – Laer-Buffelsrivier	5+

29. Harmonie	Murraysburg - Laer-Buffelsrivier	4-
30. Langrug	Murraysburg - Laer-Buffelsrivier	4-
31. Stellenboschvlei	Murraysburg - Laer-Buffelsrivier	4
32. Dowefontein	Murraysburg - Laer-Buffelsrivier	5-
33. Louwsbaken	Murraysburg - Laer-Buffelsrivier	5
34. Bruinrug	Murraysburg - Laer-Buffelsrivier	5+
35. Bakensrug	Beaufort West - East	5+
36. Mimosa Lodge	Beaufort West - East	5
37. Helvetia	Beaufort West - East	5+
38. Plaatdoorns	Beaufort West - East	5+
39. Lombardskraal	Beaufort West - South	5+
40. Moerbeifontein	Beaufort West - South	5+
41. Boplaas	Beaufort West - South	5+
42. Klipstawel	Beaufort West - South	5+
43. Aardoorns	Beaufort West - South	5+
44. De Put	Beaufort West - South	5+
45. Wolwekraal	Beaufort West - South	5+
46. Seekoegat	Beaufort West - South	5+
47. Droëkloof	Beaufort West - South	5+

Table 2. Final prioritization list for the Central Karoo district.

Priority	Status
1. Laingsburg – Winter rainfall	Fair
2. Moordenaarskaroo	Good
3. Koup	Good
4. Prince Albert	Good
5. Leeu-Gamka	Fair
6. Beaufort West - North	Good
7. Murraysburg – Driehoeksfontein	Fair
8. Murraysburg – Laer-Bufferivier	Dry
9. Beaufort West - East	Good
10. Beaufort West - South	Good

Veld Assessment Outcomes.

- The veld in the **Murraysburg – Laer-Bufferivier** is still dry, extending a bit into the **Driehoeksfontein** area.
- The **Leeu-Gamka** area (north of Leeu-Gamka and west of Beaufort West) also have drier areas (see VCI map). Small patches did receive some rain, but unfortunately, most of the areas are still dry with little recovery and not much fodder reserves available in the veld.
- If they do not receive late summer rains, it might become very dry again, especially the Murraysburg – Laer-Bufferivier area. If fodder assistance is still available, it should be focused on the Murraysburg, and to some extent the Leeu-Gamka, areas.
- The rest of the Central Karoo is currently in a good condition, except for the Laingsburg – winter rainfall area that is, as expected in a fair condition as their rain season only starts from April/May.

5.2.5.2 Garden Route district

Table 3. List of areas visited in the Little Karoo local municipality (Oudtshoorn & Kannaland) in order of visit with score of the individual stops and the status for the district.

Areas visited	District	Scoring
1. Stolsvlakte	Oudtshoorn	5+
2. Zeekoerivier	Oudtshoorn	5+
3. Wilgerivier	Oudtshoorn	5+
4. Warmbad	Oudtshoorn	5+
5. Opsoek	Kannaland	5+
6. Knuy	Kannaland	5+
7. Wolwekop	Kannaland	5+
8. Bokkraal	Kannaland	5+
9. Zoutkloof	Kannaland	5+

The veld in Little Karoo is currently in a good condition with the expectation of a winter rain season that is ahead.

Hessequa district

Table 4. List of areas visited in the Hessequa local municipality in order of visit with score of the individual stops and the status for the district.

Areas visited	District	Scoring
1. Zandkraal	Hessequa	5+
2. Driefontein	Hessequa	5+
3. Skoongeleë	Hessequa	5+
4. Stilbaai	Hessequa	5+
5. Droomwater	Hessequa	5+
6. Brakfontein	Hessequa	5
7. Slangrivier	Hessequa	5+
8. Eerstekop	Hessequa	5+
9. Paardekloof	Hessequa	5+
10. Napky	Overberg	5

11. Swellendam	Overberg	5+
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The area of the Hessequa and the far east of the Overberg, that we visited were in a good condition with smaller areas that is in a fair condition.

Mossel Bay district

Table 5. List of areas visited in the Mossel Bay district in order of visit with score of the individual stops and the status for the district.

Areas visited	District	Scoring
1. Mosgas	Mossel Bay	5+
2. Buffelsfontein	Mossel Bay	5+
3. Gourits	Mossel Bay	5+

The Mossel Bay district is currently in a good condition.

Table 6. Final prioritization list for the Eden district

Priority	Status
1. Oudtshoorn	Good
2. Kannaland	Good
3. Hessequa	Good
4. Mossel Bay	Good

- The veld of the **Garden Route District**, where we visited, is currently in a good condition with only small areas that are in a fair condition.
- Many perennial plants however died because of the years of drought and the veld will take some time to recover to its full potential.
- Animal numbers should therefore be kept low to allow for the desirable plants to flower and drop their seed before it is grazed.

In Summary:

Most of the **Central Karoo** is in a good condition, but there are still areas that are in a dry to fair condition. The Central Karoo is at the end of its rainy season, and if these areas (Murraysburg – Laer-Buffelsrivier; Leeu-Gamka) do not receive late autumn rains, the condition of the veld would deteriorate further. can become worse. Where possible, the department should continue providing drought support to farmers located in this area.

The **Garden Route District** is mostly in a good condition.

Although most of the areas visited is in a good condition, farmers should be advised not to increase their animal numbers to quickly, in order to give the veld a better chance to recover.

5.2.6 September 2022 (winter rainfall areas)

If the winter rainfall region does not receive some summer rain, areas that are currently dry to very dry, might become critical. To date large parts of the winter rainfall area, especially towards the northwest (Knersvlakte, Hardeveld, Sandveld as well as the Ceres-Karoo – see VCI maps in Annexure B), received below average rainfall during the winter of 2022. Although there was some recovery in the veld in certain areas, there is not much food reserves at this stage as many plants have died. The current grazing capacity is much lower than the recommended long-term grazing capacities as gazetted in the Conservation of Agricultural Resources Act (Act 43 of 1983, as amended GN 898 in GG 41870 of 31 August 2018). Farmers should be urged not to increase their animal numbers, but to keep it low, to give the veld a better chance for recovery once it starts raining.

5.2.6.1 West Coast District

Table 7. List of areas visited in the Swartland and Sandveld in order of visit with the score of the individual stops and its specific region.

Areas visited	Region	Scoring
1. Klipvlei	Swartland – West	5+
2. Glen Peter	Swartland – West	4-
3. Sandvlei	Swartland – West	5+
4. Koperfontein	Swartland – West	5-
5. Goedemandskraal	Swartland – East	5+
6. Spienkop	Swartland – East	5+
7. Agterland	Swartland – East	5+
8. Uitsig	Swartland – East	5+
9. Saron	Swartland – East	5+
10. Bergrivierstasie	Sandveld	5-
11. Drommelvlei	Sandveld	4+
12. Aurora	Sandveld	4+
13. Berg-en-Dal	Sandveld	5+
14. Redelinghuys	Sandveld	5+
15. Leipoldville	Sandveld	5
16. Klipheuwel	Sandveld	5+
17. Verlorenvlei	Sandveld	5+
18. Drilrivier	Agterpakhuis	5-
19. Bushman's Cave	Agterpakhuis	5
20. De Lille	Agterpakhuis	5
21. Herenlogement	South of Vredendal	5
22. Die Bakke	South of Vredendal	5
23. Bergkraal	South of Vredendal	4-
24. Vaderlandsrietkuil	Knersvlakte-South	3+
25. Groot-Graafwater	Knersvlakte-South	4
26. Graatjiesgat	Knersvlakte-North	3
27. Kruispad	Knersvlakte-North	4+
28. Kokerboom	Kliprand-East	5
29. Kamas	Kliprand-East	5+

30. Lieslap	Kliprand-West	5+
31. Willem	Kliprand-West	5
32. Bokkraal	Kliprand-West	5
33. Louw	Hardeveld	4
34. Putsekloof	Hardeveld	4
35. Kogelfontein	Hardeveld	4+
36. Kwaggaskop	Hardeveld	3
37. Komkans	Northwest of Vredendal	3+
38. Landplaas	Northwest of Vredendal	3
39. Namakwa Sands	Northwest of Vredendal	3

Table 8. Final prioritization list for the West Coast District.

Priority	Area visited
1. Swartland – East	Good
2. Swartland – West	Fair
3. Sandveld	Good
4. Agterpakhuis	Fair
5. South of Vredendal	Fair
6. Knersvlakte – South	Dry
7. Knersvlakte - North	Dry
8. Kliprand - East	Good
9. Kliprand – West	Good
10. Hardeveld	Dry
11. Northwest of Vredendal	Very dry

Veld Assessment Outcome

- The **eastern** parts of the **Swartland** is currently in a good condition with ample fodder available.
- **West** of Moorreesburg in the **Swartland**, as well as the **Sandveld** is in a fair condition, varying from fair to good across the region. The final volume of fodder available from the croplands will depend on late season rainfall and warm days received in the following weeks.
- Full recovery of the veld might take more than two years of above average rainfall and animal numbers should stay low to give the veld a chance to recover, as there are many dead plants.
- The **Matzikama and Cederberg** regions are in a very dry to good condition.
- The north-eastern parts of the area, around Kliprand has received very good summer rainfall but below average winter rainfall and is currently in a good condition.
- To the west and south, the winter rainfall was below average with very little 'opslag' present and not much regrowth on the perennial plants. This might lead to fodder shortages during the coming dry summer months and the situation might revert back from critically dry to extremely critically dry by the end of the summer (see VCI maps).
- Full recovery of the veld might take more than two years of above average rainfall and animal numbers should stay low to give the veld a chance on survival and recovery.

5.2.6.2 Cape Winelands District

Table 9. List of areas visited in the Cape Winelands district in order of visit with the score of the individual stops and its specific region.

Areas visited	Region	Scoring
1. Bo-bos	Witzenberg – west	4

2. Sadawa	Witzenberg – west	4-
3. Rietpoort	Witzenberg – east	3+
4. Perdekraal	Witzenberg – east	3+
5. Brewelsfontein	Witzenberg – east	3+

Table 10. Final prioritization list for the Cape Winelands District.

Priority	Status
1. Witzenberg – west	Dry
2. Witzenberg - east	Very dry

- The **Cape Winelands** district is in a dry to very dry condition.
- The **Witzenberg** region ranges from dry in the western parts of the region to very dry to the east of the region and according to the VCI map (Annexure B) the northern areas are still very dry. Taking into account that this is at the end of their rain season, it might become critically dry towards summer.

5.2.6.3 Overberg District

Table 11. List of areas visited in the Overberg district in order of visit with the score of the individual stops and its region.

Areas visited	Region	Scoring
1. Rietfontein	Cape Agulhas	5+
2. Klipdale	Cape Agulhas	5-
3. Klipdrift	Cape Agulhas	5+
4. Witklippieskloof	Theewaterskloof	5
5. Oudekraal	Theewaterskloof	5+
6. Rietfontein	Theewaterskloof	5

Table 12. Final prioritization list for the Overberg District.

Priority	Status
1. Cape Agulhas	Fair
2. Theewaterskloof	Fair

- The **Overberg** district is in a fair condition, with normal to above-normal crop stands across the region with smaller areas where it is below normal.

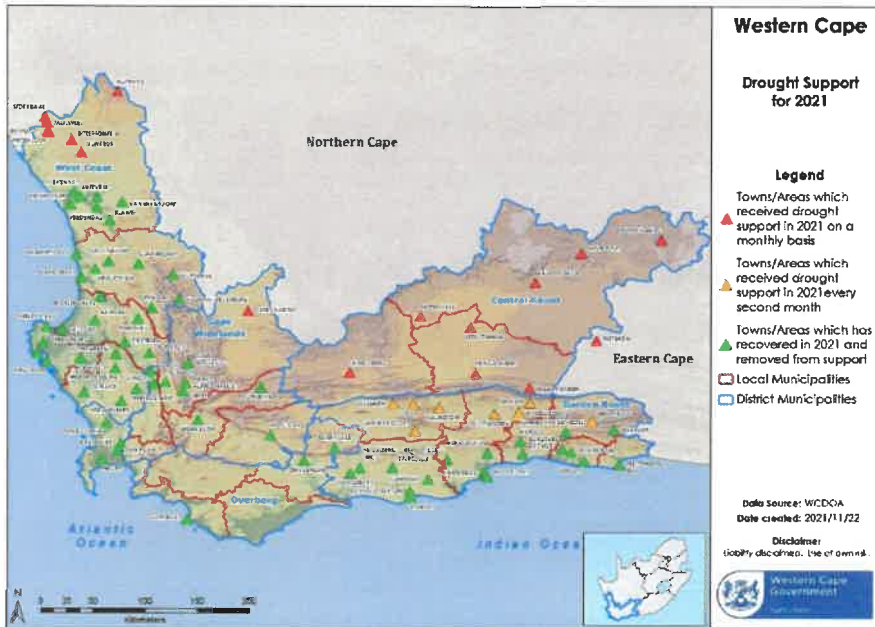
In Summary:

- The far northwest corner of the Matzikama region in the West Coast district is in a good condition due to above-normal summer rainfall.
- The rest of the district is in a dry condition and to the south-west (north-west of Vredendal) becomes very dry.
- The south-western parts of the Witzenberg region in the Cape Winelands district is still dry, but towards the east and north (see VCI map) it is very dry. The veld has very little fodder available for the livestock.
- The very dry areas still need drought-relief assistance on a regular basis and the dry areas on a two-monthly basis if funds are available.
- Farmers should not increase their animal numbers immediately once it rains, to give the veld a better chance on recovery.
- The Cederberg region of the West Coast district is in a fair condition. Farmers should not increase their animal numbers immediately once it rains, to give the veld a better chance on recovery.
- Although the Swartland and Sandveld regions of the West Coast district and the Overberg district received below average rain, the veld and croplands are in a fair to good condition.
- Farmers should not increase their animal numbers immediately once it rains, to give the veld a better chance on recovery.

5.2.7 Veld Map 2022

- VI. Areas marked in Green do not require drought support.
- VII. Areas marked in Orange are categorised as 'critical'.
- VIII. Areas marked in Red categorised as 'extremely critical'.

WCDoA Drought Support Map 2021



6. CONCLUSION

In light of the fact that disasters are increasing in both intensity and frequency, the department has shifted its focus to develop and implement disaster risk-reduction, mitigation and prevention strategies.

Due to the crippling nine (9) year drought, farmers are re-focussing their efforts on disaster mitigation projects. Emerging from our stakeholder engagements, it is clear that the ongoing drought has had a detrimental impact on not only the agricultural sector, but also the community at large. In a bid to stem the unemployment of agri-workers, the decision was taken that all future agricultural disaster mitigating projects should use local farm agri-workers. The DRR team is looking at a holistic approach, which will consider the impact of the drought and other disasters on all stakeholders.

Fruit farmers have also been negatively affected by the ongoing drought. The department recognises the disparity in the level of support given to the fruit farmers when compared to the support given to livestock farmers.

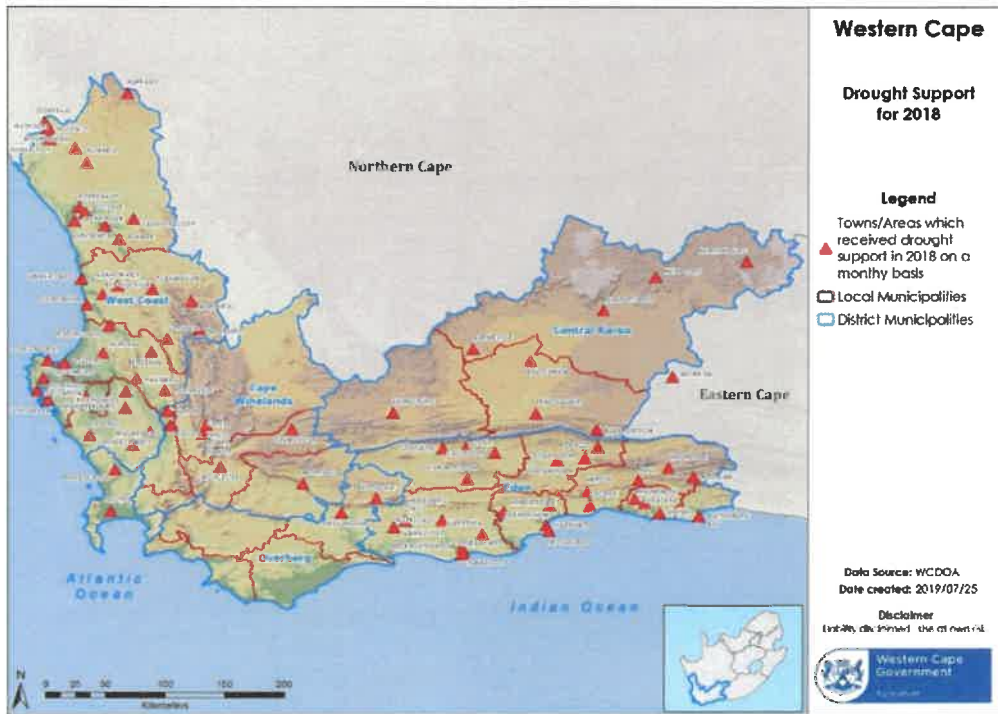
Through the provincial disaster risk assessments, the DRR Unit identified a number of risk factors, which could potentially destabilize the farming community. These risk factors include, but are not limited to, climate change, predation, resistance to the adoption of new technologies, alien vegetation, unjustified animal feed and transport costs and unsustainable farming practices.

The department, through its dedicated Disaster Risk Reduction Programme will continue to build and maintain resilience within the farming community, thereby protecting its farmers from the negative impact of disasters.

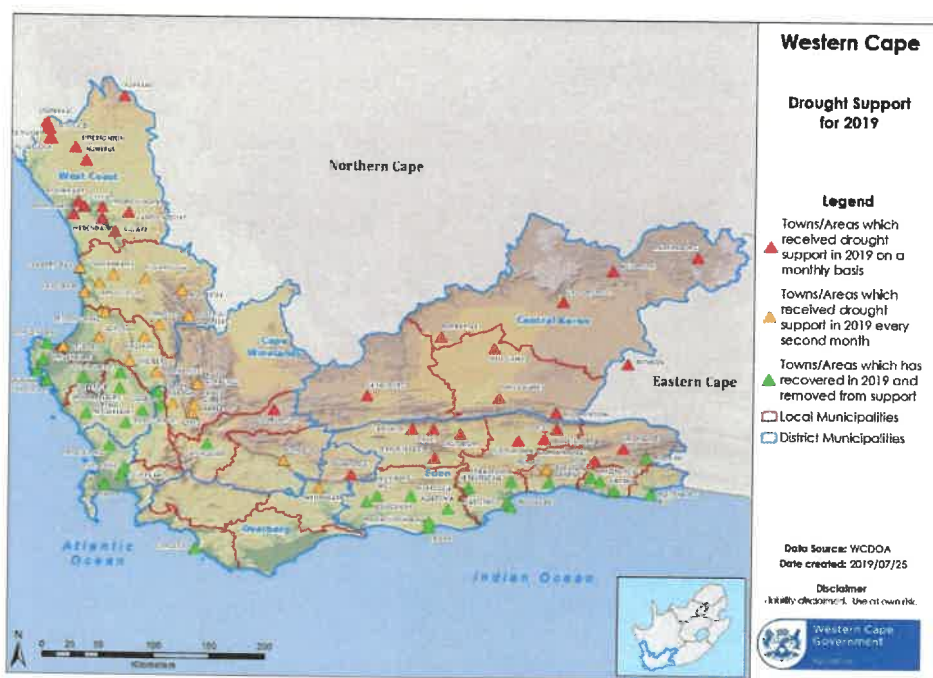
7. ANNEXURES

Annexure A: Identifies the veld conditions in the areas across the province and the resultant level of drought support. (2018 -2022)

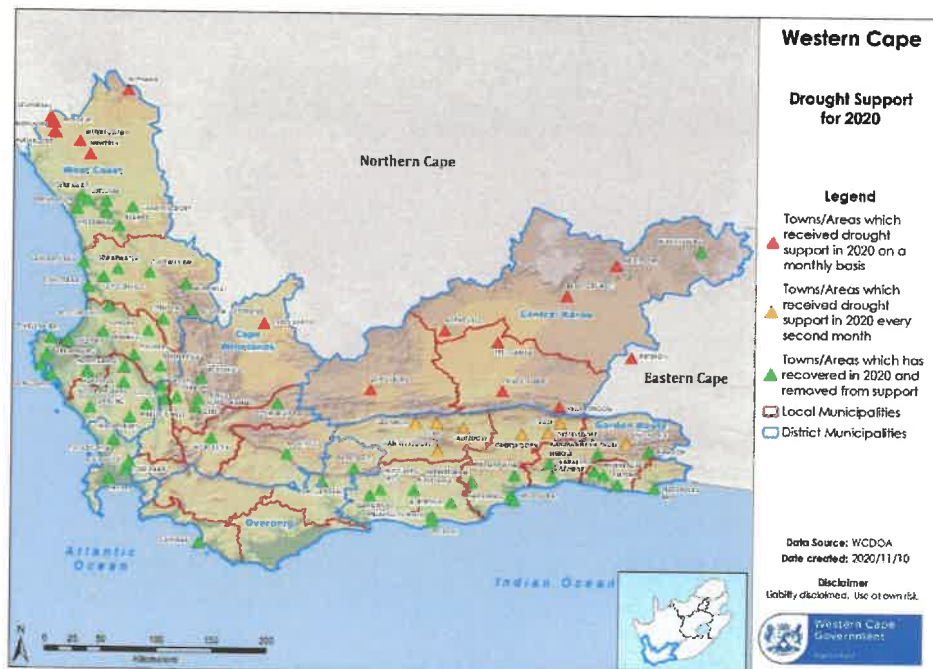
WCDoA: Drought Support Map 2018



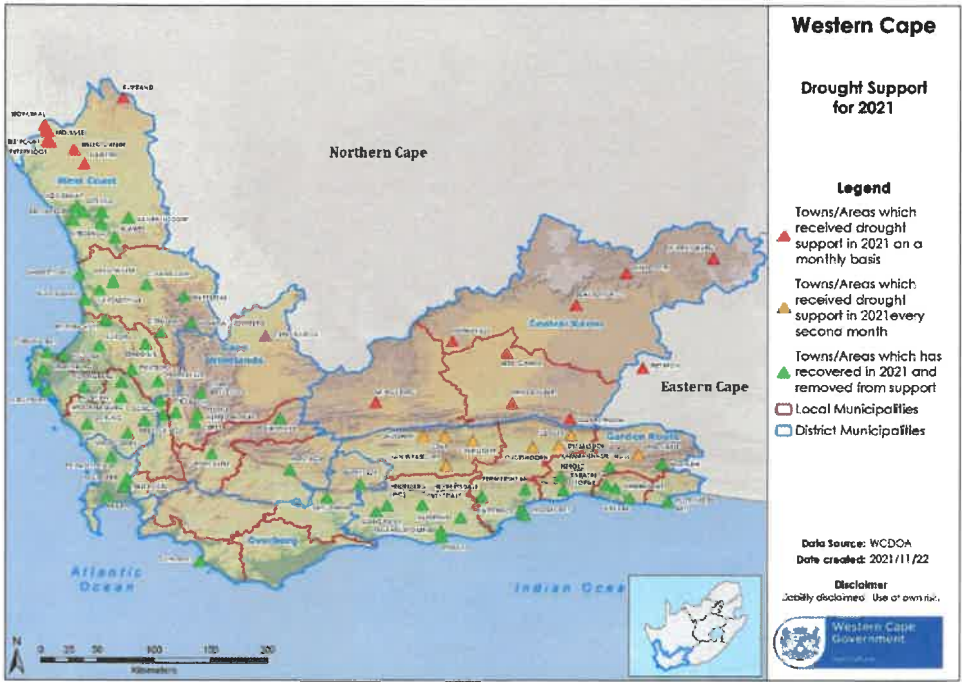
WCDa: Drought Support Map 2019



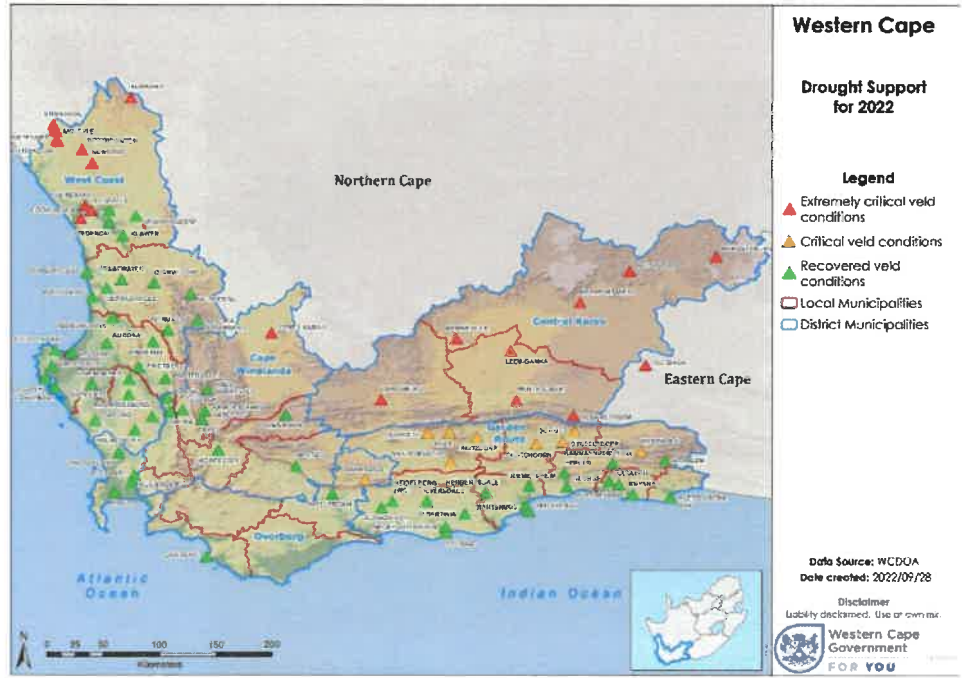
WCDa: Drought Support Map 2020



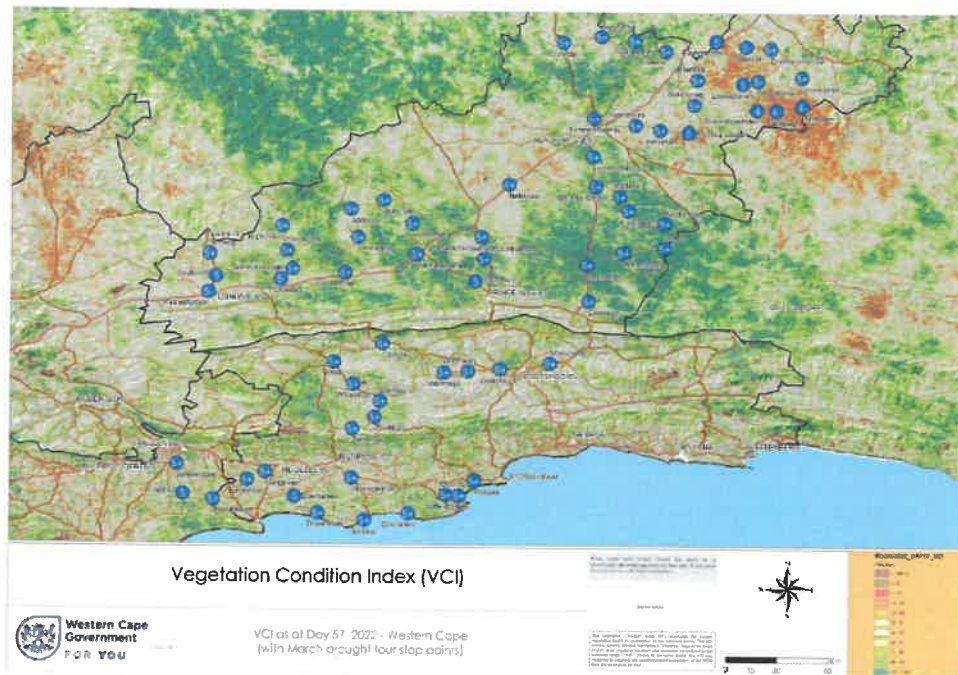
WCDoA: Drought Support Map 2021



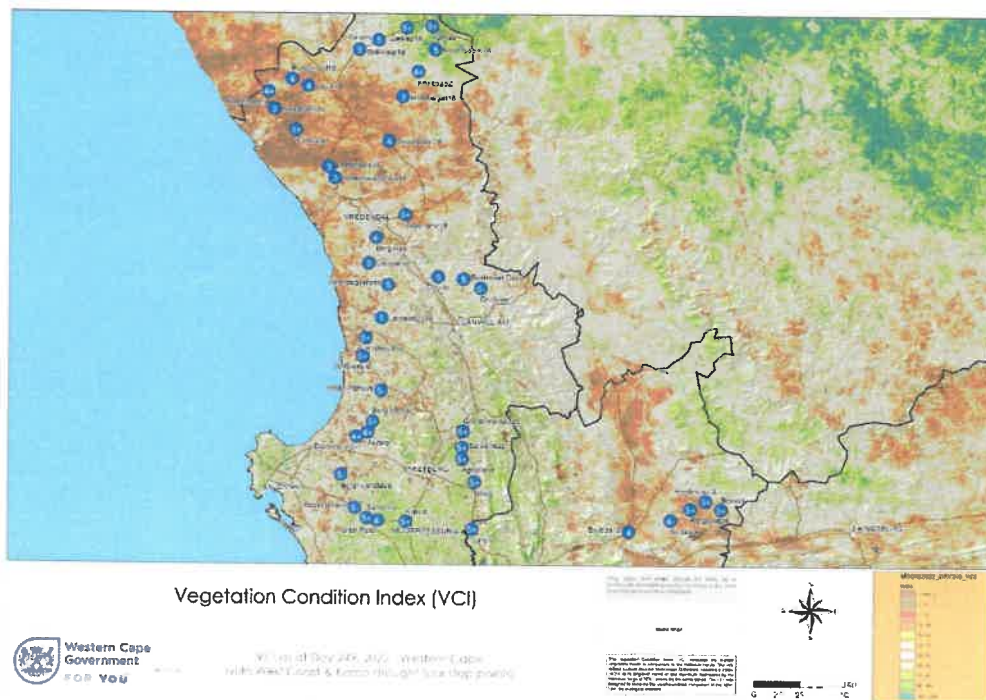
WCDoA: Drought Support Map 2022



Annexure B: Vegetation Condition Index (VCI)




Annexure B: Vegetation Condition Index (VCI) (Day 249) West Coast & Central Karoo stop points



Annexure C: Vegetation Condition Index (VCI) (Day 249) Overberg stop points

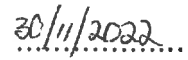


TECHNICAL INPUTS PROVIDED BY:


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MS NELMARIÉ SAAYMAN (Pr. Sci. Nat.)

PROFESSIONAL SCIENTIST (RANGELANDS): RESEARCH AND TECHNOLOGY DEVELOPMENT SERVICES


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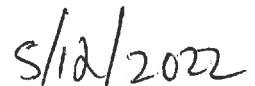
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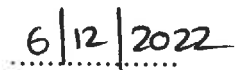

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SUB PROGRAMME MANAGER: JN WENTZEL (Pr. Techni Eng)

DISASTER RISK REDUCTION: SUSTAINABLE RESOURCE USE AND MANAGEMENT


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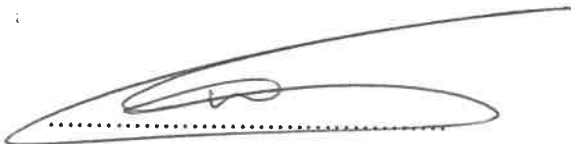
MS A PETERTSEN

DIRECTOR: SUSTAINABLE RESOURCE USE & MANAGEMENT

12/12/2022
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DATE:

THE FINDINGS IN THIS REPORT IS SUPPORTED/~~NOT SUPPORTED~~:


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MR DW JACOBS

DDG: AGRICULTURAL DEVELOPMENT AND SUPPORT SERVICES

12/12/2022
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DATE:

