

WWF-MDF_ID1854-ZA06370C_Water stewardship in the upper uThukela: Smallholder climate resilient agriculture and water provision

Milestone 3: 1st Project report.

EXECUTIVE SUMMARY

Between September and December 2022, the following broad activities have been undertaken:

1. Spring protection: Water committee meetings and updates in 3 villages, Vimbukhalo, Stulwane and Ezibomvini. Water walks and design of water source protection and reticulation development scenario in Vimbukhalo, followed by borehole flow and water quality test and finalisation of system plan. A new pump has been procured. Next steps will be the borehole revitalization and putting in piping and taps for 56 beneficiary households.
2. CRA implementation: CA review and planning sessions for 5 villages, collaboratively managed trials planned for 25 participants and farmer led CA trials for a further 85 participants. A total of 110 participants across 5 villages involved and planting Soil samples taken for ??? participants. Runoff pans (3 per participant) and rain gauges set up for 8 CMT participants. Inputs procured and planting commenced on 15 November 2022. Planting will continue until 15 December 2022. Next steps are to do planting and crop growth monitoring for the 25 CMTS and to set up fodder supplementation trials (Jan-Feb 2023).
3. Crop diversity and marketing: Introduction of different varieties of maize (generic hybrids and short season maize), beans, cover crops (sorghum, Sun hemp sunflower), fodder crops (turnips, cowpeas) into the system.

NARRATIVE REPORT

PROJECT DETAILS

Assessment: The project is going well and is on track to finish by the set date	On track to achieve outcomes	1	Yes
	Concern about progress	2	
	Did not achieve outcomes	3	
Project No and Title	WWF-MDF_ID1854-ZA06370.C_Water stewardship in the upper uThukela: Smallholder climate resilient agriculture and water provision		
Date of approval	6 th October 2020		
Start and end date	1 st July 2022- 30 April 2024		
Project value	R1 285 000		
Contractor's name	Mahlathini Development Foundation		
Project objectives	106 farmers across 5-8 villages improve on CA in their farming system (20ha's). A volumetric water benefit (VWB) for reduced runoff (~500 000l/ha/annum) and reduced consumption (~7 million l/ha) are assumed and measured. Spring protection (v box) with limited reticulation to header tanks and taps for 20 households which is community owned and managed is implemented in at least 1 village with full involvement of institutional stakeholders to explore governance and stewardship options.		
Project outcomes	1.3.2. <i>Monitoring and measurement of VWB of Conservation Agriculture and livestock integration practices in the upper uThukela for smallholder farmer communities</i> 1.3.2.1 Development of CA farmer level trials for a minimum 75 participants with measurement of run-off, rainfall, bulk density, evapotranspiration and water productivity for around 8-12 participants. a. 5 Members of 5 CRA learning groups plan, layout and plan CA collaboratively managed trials (CMT's). Run-off pans installed for 8-12 participants for round 1		

	<ul style="list-style-type: none"> b. Crop growth monitoring for 25 CMTs, run-off and rainfall results compiled, bulk density and water productivity sampling undertaken and analysed, and yield measurements undertaken for round 1 c. 5 Members of 5 CRA learning groups plan, layout and plan CA collaboratively managed trials (CMT's). Run-off pans installed for 8-12 participants for round 2 d. Crop growth monitoring for 25 CMTs, run-off and rainfall results compiled, bulk density and water productivity sampling undertaken and analysed and yield measurements undertaken for round 2 <p>1.3.3 <i>Improved crop diversity, yields, and marketing for three local value chains leading to improved livelihood and incomes for smallholder farmers in the upper uThukela</i></p> <p>1.3.3.1 Inclusion of a range of options for cropping different varieties of maize, legumes and cover crops for 110 CA participants undertaking CA farmer level experimentation. Measurement of cropping areas, crop growth and yield for a minimum of 75 participants.</p> <ul style="list-style-type: none"> a. CA trials set up for 110 participants across 5 CRA learning groups in the Emmaus area. Planning meetings, demonstration and learning workshop and planting support. Cropping areas measured. Round 1 b. Monitoring for a minimum of 20% of 110 farmer level CA trials. Yield measurements done. Round 1 c. CA trials set up for 110 participants across 5 CRA learning groups in the Emmaus area. Planning meetings, demonstration and learning workshop and planting support. Cropping areas measured. Round 1 d. Monitoring for a minimum of 20% of 110 farmer level CA trials. Yield measurements done. Round 2 <p>1.3.4 <i>Improved livestock management through fodder supplementation and production awa rangeland management practices</i></p> <p>1.3.4.1 Fodder supplementation farmer level experiments undertaken for a minimum of 11 participants with monitoring of growth, yield and animal condition scoring</p> <ul style="list-style-type: none"> a. Planning for fodder supplementation trials across 5 CRA learning groups. Participants outline their trials, are provided with layout and logistical support and start planting. Round 1 b. Monitoring of 11 fodder trials, planning for winter fodder supplementation. Planning for fodder supplementation. Round 1 c. Planning for fodder supplementation trials across 5 CRA learning groups. Participants outline their trials, are provided with layout and logistical support and start planting. Round 2 d. Monitoring of 11 fodder trials, planning for winter fodder supplementation. Planning for fodder supplementation. Round 2 <p>1.3.5 <i>Improved access to water at household level for both consumption and farming through community owned water provision projects.</i></p> <p>1.3.5.1 Water committees and external service providers plan and implement a local water supply scheme through protection of at least 1 spring and reticulation to ~20 households</p> <ul style="list-style-type: none"> a. Meetings with water committees, walkabouts and local surveys, engineering support for layouts and scenarios, planning for local water provision options, implementation initiated. b. Local water provision implementation completed. Meetings with water committees re maintenance, operations and conflict resolution <p>1.3.6 <i>Improved governance and water stewardship in the communal tenure areas of the upper uThukela through multiple stakeholder engagement activities with the CRA learning groups.</i></p> <p>1.3.6.1 CRA learning groups undertake meetings for planning, analysis and review and also undertake cluster meetings to jointly explore and share information and options. They participate in multistakeholder</p>
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	level activities and liaise and negotiate with relevant role players such as the uThukela District Municipality, councillors, and Traditional Authorities <ol style="list-style-type: none"> a. Review and planning meetings held with a min of 2 CRA learning groups, Cluster meetings held around specific thematic issues. 2 Workshops to discuss water and resource stewardship and management. Attendance of 1-2 multistakeholder events
Reporting period	July-December 2022
Significant approved changes	Beneficiary numbers for CA changed from 250 to 110, with concomitant reduction in hectares to 15,8 ha. 25 Fodder supplementation trials reduced to 11.
Changes in capacity to deliver outcomes	None

1 PROGRESS PER OBJECTIVE AND OUTCOME

Table 1: Progress against specific outcomes and activities for the period July- 1 December 2022

Outcome	Activities	Progress (Milestone 7)
CA with VWB for reduced runoff and water productivity	Development of CA farmer level trials for a minimum 25 participants with measurement of run-off, rainfall, bulk density, evapotranspiration and water productivity for around 8-12 participants.	<ul style="list-style-type: none"> ✓ 25 CMT's across 6 villages planned and laid out ✓ Runoff pans installed for 8 participants (3 per participant) ✓ Runoff and rainfall monitoring forms developed, and interim results compiled ✓ Soil samples taken for 22 CA trial participants (17 CMTs and 5 other participants)
	Inclusion of a range of options for cropping different varieties of maize, legumes and cover crops. Measurement of cropping areas, crop growth and yield for a minimum of 75 participants	<ul style="list-style-type: none"> ✓ CA trails set up for 110 participants across 5 villages ✓ Initial database for farmers developed and being populated
	Fodder supplementation farmer level experiments undertaken for a minimum of 11 participants with monitoring of growth, yield and animal condition scoring	<ul style="list-style-type: none"> ✓ Fodder supplementation trials planned for 11 participants
Improved access to water at household level for both consumption and farming through community owned water provision projects.	Water committees and external service providers plan and implement a local water supply scheme through protection of at least 1 spring and reticulation to ~20 households	<ul style="list-style-type: none"> ✓ Vimbukhalo planning for renovation of borehole, expansion of households to 35 ✓ Negotiation with SAPPI for protection of spring on their land to top part of Vimbukhalo (10 households) ✓ Borehole test and scenario development ✓ Ezibomvini meetings to review spring protection and plan for further action- scenario development (15 households)
Improved governance and water stewardship in the communal tenure areas of the upper uThukela through multiple stakeholder engagement activities with the CRA learning groups	CRA learning groups undertake meetings and stakeholder engagement	<ul style="list-style-type: none"> ✓ Review and planning sessions held with 4 CA learning groups (Stulwane, Ezibomvini, Eqeleni and Vimbukhalo) (75 participants) ✓ Vimbukhalo: Meetings with councillor and SAPPI ✓ Community representatives attend uThukela water source partnership workshops 29th September and 10th November 2022 (Vimbukhalo, Stulwane) ✓ UKZN: Thematic workshops in Stulwane and Ezibomvini: Weather variability, mapping, veld assessments (30 September and 14 October 2022)

1.1 CONSERVATION AGRICULTURE

1. *Collaboratively managed trials (CMTs)*

The farmer level collaboratively managed CA trials have been set up for 25 participants across 6 villages. Each trial is 1000m² in extent with 10 plots of 100m² each. The layout is the same for all 25 farmers and is shown below

The layout for these trials is shown below:

- M-Maize (PAN53 or PAN6479)
- SSM- Short season maize (PAN5A190 or PAN5A172)
- B-Beans (PAN9292 or Gadra)
- SCC- Summer cover crops (Sun hemp and fodder sorghum and sunflower)
- CP- Cowpea (Betshuana white)
- Pk- Pumpkin (Queensland blue or Flat white boer)
- WCC (Fodder rye and fodder radish and Saia oats)

BLOCKS (10x10m) x 10 plots	1 M	2 M+B	3 SCC	4 M	5 M+B
	10 M+CP/Pk	SCC	8 M+B	7 M	6 SCC
Strips (2mx50m) x10 strips	1 M				
	2 M+B				
	3 SCC				
	4 M				
	5 M+B				
	6 SCC				
	7 M				
	8 M+B				
	9 SCC				
	10 M+CP/Pk				
Fodder Strips (2mx50m) x 8 strips Short season maize PAN5A190=yellow PAN5A172=white	SSM				
	B/WCC relay				
	SSM				
	Lespedeza				
	SSM				
	Tall Fescue				
	SSM				
	B/WCC relay				

NOTES: Fodder strips are to be planted in late January 2023.

For the CMT's the following inputs are provided: 12kg of MAP and LAN respectively, seed for maize beans and cover crops, herbicide for pre-plant spraying and Kemprin for control of cutworm and stalk borer. Lime is supplied to a selection of participants who still have acidity issues in their fields. All CMT's and control plots are planted by the farmers themselves using planting equipment shared by the learning group. Tractors for planting of strips as well as ploughing in of lime for remedial plots have been arranged through the Okahlamba Local Municipality and the KZNDARD.

Each participant also undertakes to plant a 1000m² CA control plot – which is planted to a monocrop of maize, using their own seed and fertilizer.

All planting of CMTs was started on 15 November and will continue through to around the 7th of December.

The table below outlines the CMT participants with associated activities such as runoff pans and rain gauges (8 participants), soil sampling (25 participants), lime application (7 participants), specific trials in stover retention (3 participants) and remediation of plots (3 participants). The latter is for participants who have practices CA for a minimum of 3 years, but due to poor soil conditions have made little progress.

Table 2: CMTs outlined for 25 participants: November 2022

CMTs	Runoff pans	Soil samples taken	Soil sample results available	Fodder supplementation	Lime
Ezimbovini					
Phumelele Hlongwane	3 (M, M+B, Ctrl)				
Landiwe Dlamini		✓			
Zodwa Zikode	3 (M, M+B, Ctrl)			✓	
Nombono Dladla					
Mantombi Mabizela				✓	
Cabangani Hlongwane		✓			
Vimbukhalo					
Sbongile Mpulo	3 (M, M+B, Ctrl)	✓		✓	
Zweni Ndaba	3 (M, M+B, Ctrl)	✓			
Bukisiwe Mpulo		✓		✓	
Zibonele Sithole					
Eqeleni					
Thulani Dlamini		✓		✓	
Ntombakhe Zikode		✓		✓	4,5t/ha (9bags)
Sthabiso Manyathi	3 (M, M+B, Ctrl)	✓		✓	
Thulile Zikode	3 (M, M+B, Ctrl)	✓		✓	3-9t/ha (5bags)
Nah Khumalo		✓			
Stulwane					
Nelisiwe Msele	3 (M, M+B, Ctrl)				0 – 3t/ha (4bags)
Dombi Ntshingila/Dlamini					
Nothile Zondi	3 (M, M+B, Ctrl)	✓		✓	
Thulani Dlamini (Danger)				✓	1,5-6t/ha (4bags)
Khulekani Dladla		✓		✓	0-4t/ha (8bags)
Nondomiso Zondi		✓			
Madakaneni					
Xolile Gambu		✓			4,5t/ha (9bags)
Nokuthula Mabaso		✓			
Emahlathini					
Buyisiwe Sithebe		✓			
Buyisiwe Hlongwane		✓			
NOTES					
8 Participants with runoff plots also each have a rain gauge installed					
	Fencing of trials for livestock exclusion and full stover retention (500m ²)				
	Remedial trials: contour ploughing for lime inclusion, runoff control bunds, planting to cover crops (sunflower, Sun hemp, sorghum, cowpeas, turnips) – also for fodder supplementation (1000m ²)				
	Soil samples results available from previous seasons (2014-2019) for a selection of participants for comparison (Used to estimate Lime requirements, as present results aren't yet available)				

2. *VWB for reduced runoff and water productivity*

Runoff pans were installed for 8 participants, as shown in table 2 above. Installation of 3 pans per participant was done in a Maize only CA plot, ad Maize and bean intercropped CA plot and in the farmer's control plot. Care is taken with installation to ensure the pan is level and the runoff collection bucket is dug into the ground to a level below that of the pan. Each participant also has a rain gauge installed and have bene provided with monitoring sheets to record the rainfall and runoff.



Figure 1: Above Left: Installing a rain gauge for Mr Manyathi in Eqeleni. Above centre: Ensuring the runoff pan is level and Above right: An installed pan in a CA plot for Phumelele Hlongwane in Ezibomvini.

Rainfall and runoff measurements commenced in October 2022. Below is a small table summarizing the runoff results to date. As planting has not yet happened, this is the 'basal' runoff from each plot before cropping commences. This explains why the runoff is similar for all three plots: control maize only and maize and bean plots...

Runoff summaries Oct-Nov 2022						
Village	Name	Month	Rainfall (mm)	Runoff (L); Control	Runoff (L); M+B	Runoff (L); M
Eqeleni	Sthabiso Manyathi	October	51,6	9	9	11
		November	61,3	2,7	2,7	4,2
	Thulisile Zikode	October	125	4,3	4,5	4,09
		November	120	5,4	5,4	5,4
Eizbomvini	Zodwa Zikode	October	58	4,8	4,85	4,9
		November	86	4,4	3,35	5,315
	Phumelele Hlongwane	October	31	0,7	2,2	3,05
		November	99,5	8	5,75	4,94
Stulwane	Nelisiwe Msele	October	73	4,69	3,955	0
		November	173,2	6,2	6,94	1,25
	Nothile Zondi	October	68	5,4	8,5	8
		November	97,9	10,6	7,8	13,2
Vimbukhalo	Sibongile Mpulo	October	43	4,7	3	4,7
		November	68	2,9	1,4	2,4
	Zweni Ndaba	October	94,5	2,9	6,4	3
		November	222	2,6	11,4	10,1
TOTAL (2months)			184,00	9,91	10,89	10,69

In addition, soil samples have been taken for 17 CMT participants and another 5 other CA participants (Buyisiwe Ndaba and Sindsisiwe Makhathini in Vimbukhalo, Cabangani Hlongwane in Ezibomvini, Mthokozisi and Thembi Hadebe in Ezinyonyana).

Sub-cores of the top 15cm for soil, taken in a zig-zag pattern across the field for a minimum of 15 sub-cores are combined to represent a composite sample for each participant.

These were submitted to CEADARA soil laboratories for analysis on the 19th of September. Results have still not been released. This has necessitated using generic averages for this planting season, as planting cannot be delayed any longer.

Figure 2: An intern, Nqobile Mbokazi, assisting Mr Khulekani Dladla from Stulwane with his soil sample.



A database, as per recommendation from Mr Luyanda Njanajala, is being compiled for all participating farmers. The first draft of this database is shown in Annexure 1. Collection of the information and getting the GPS data for each of the 110 farmers involved in the process is time consuming and ongoing.

Procurement and distribution of the inputs for the CA trials has been done and the first demonstration planting of the trials commenced on the 15th of November 2022. CRA learning group participants work together in teams to do the planting. The sub-plots of the trials are marked out with pegs and string, herbicide is applied and then basins opened for placing seed and fertilizer. Some participants also use the MBLI hand planters- which deposits the seed and fertilizer together.



Figure 3: Above left: Planting of a CA trial in Ezibomvini, showing the pegs and string and participants opening the planting basins with hand hoes. Above right: A participant using the MBLI hand planter.

Figure 4; Right; Two participants working together to place fertilizer (MAP, using cooldrink bottle caps to provide the 4,2g of fertilizer par basin and maize seed to each planting basin.



Planting will continue systematically until mid-December to complete all 110 CA trial plots. The CA control plots are planted individually by each participant, using their own inputs.

1.2 WATER ACCESS

3. *Water walks and scenario development for Vimbukhalo*

The process consists of the following steps:

- Discussions with CRA learning group and water committee to ascertain the need and motivation for action, followed by initial group walks to identify possible water sources

- A more formal water walk with the engineer of the most promising options. Springs that are not perennial, or too low down to be reticulated using gravity, or too far away from households, or where ownership is contested are removed from the list of options.
- The engineer develops scenarios for the development of the source and potential yield and reticulation. These options are discussed with the water committee and participants and final lists of potential participants are drawn up. Here it is determined who will be part of the scheme. Some households will fall outside of the physical range of the reticulation and different options need to be discussed with them. Some households will not want to join the group and make the required payments or undertake the labour themselves.
- Then, the work is outlined, and undertaken jointly between the group, the engineer and MDF's field team

MDF initially engaged in thinking through water access options with the Vimbukhalo community in 2019-2020 and a Water Committee was formalized. At the time no assistance had been provided by the authorities since 1994. Water access was through to small, localized schemes – a protected spring and a borehole provided by the Department of Agriculture and SAPPI respectively. Most households collected, and still collect water from unprotected springs and small streams in the community. The discussions were picked up again in August 2022 and the following changes were noted:

- The SAPPI borehole with header tank, providing water for around 22 households is no longer operational as the pump stopped working
- uThukela Water, with the councillor for the area intervened and protected one spring and provided a header tank for that (on the steep slope away from the SAPPI plantations, which provides water for around 15 households)
- uThukela Water also provided a solar powered borehole for the school in the village.
- The Water Committee set up before does not represent the whole of the community, but only the section where uThukela water intervened and is made up of a number of members of the local ward committee.

Through discussions with community members, it has become clear that in Vimbukhalo there are a number of smaller informal water committees that are locality based, rather than a structure that represents the whole community. This complicates matters somewhat and provides for some competition and mistrust, but also allows for small locality -based group initiatives, which enables greater involvement and commitment for those specific groups. It does however not help with planning an overall patchwork of water access options that can benefit the whole community. The latter process has been kept in mind in the water walks undertaken by MDF but cannot be tackled coherently at present.

The initial water walk in July 2022, with the CRA learning group members and their localised water committee focused on the side of the community closest to the SAPPI plantation (east of the river). The walk showed that the SAPPI borehole, pump with one 5000l JoJo header tank is presently not operational – as the electricity trips. The community requested support first from SAPPI, who declined further support and then uThukela Water, who have not come to see the situation, but suggested households collect R100 from all participants to a minimum of R1900 for a new pump and also that they could only intervene if the community handed over the ownership of this borehole to the municipality.

These participants have been using this scheme for 10 years successfully, paying R5 per household upon request to the homestead where the electricity for the pump is connected. They mentioned that they used to pump every third day and that people would come and collect water while pumping was ongoing during the day and then later once the pump was switched off and the tank had filled up. This system seems to have worked well for this whole period until a malfunction with the electrics. There is evidence at the electricity box of trying to fix the connections and adding more insulation tape as attempts to fix the problem. Presently the households have to walk to the river, between 500-1000m away to fetch water.



Figure 5: Above Left: the header tank for the SAPPI borehole. Centre: the pump for the borehole and right: The enclosure built for the pump and electrical box.

A new borehole with solar pump has been installed at the school, further along the east side of the river by uThukela Water



Figure 6: Above Left: The borehole with solar panel at the school and Right: Looking towards the school from the wetland below

There is also some old infrastructure in the wetland below the school, originally put in by the Department of Agriculture in the mid 1980's. A small cement header tank with a tap slightly further down. The tank is still operational although it leaks, but the tap is presently situated in the middle of the wetland is highly trampled by cattle.

Figure 7: The old, protected spring with leaking header tank and inaccessible tap.



This walk was followed by more visits to local unprotected springs both within the villages and further away in the hills as more options were mentioned over time by the participants. Most of these options were not considered as the springs are small and far away from homesteads. A more formal walk with the engineer to survey the most promising options was undertaken.

The report is added as an attachment: **'WWF_Vimbukhalo borehole and spring engineering report_AM_20220905'**. The main recommendations here were:

- To refurbish the old SAPPI borehole: Do a borehole yield test, remove and replace the pump, consider according to strength and quality of water a reticulation plan that can include as many households as possible, and increase header tank capacity. Installation of communal taps is to be considered.
- To explore options for protection and reticulation of the spring in the bordering SAPPI plantation. This spring is higher up and can incorporate around 9-11 households that are situated above the borehole and are unable to access that water (Spring 1 on map) and
- Create a better water collection option for the old-protected spring in the wetland close to the school. (Spring 3 on map)

These scenarios, together with the maps were discussed with the Vimbukhalo community (21st September 2022). It was agreed there to commence with the yield testing of the borehole and to organise meetings with SAPPI to request assistance with potential spring protection on their land.

In addition, the letter of borehole ownership, obtained through SAPPI and delivered by the councillor Mr Bonginkosi Dladla is to be held safely by the committee until this refurbishment is completed. At that point the committee will make a decision as to whether they will 'keep' the ownership of the borehole with them or hand it over to the Municipality. Community members are loathe to hand over the ownership as they do not believe uThukela Water will assist them, regardless of this requirement. They are however nervous of having to take full responsibility for the system – as they can easily handle day to day management and maintenance, but cannot necessarily manage large expenditures, such as pump breakdowns. These issues will be further discussed.

Figure 8: Right: The Vimbukhalo water committee participants identifying all households on the map and Far right: The list of participants in the scheme identified.

From this workshop there were 56 households proposed to be involved in the borehole scheme who could gain access, depending on the final results for the borehole yield test. In addition, 8 households were identified who could benefit from protecting the spring on the SAPPI plantation bordering the community.



Spring 1 Coverage	
1. Kangila	Ndaba
2. Ka-Thugi	Maribuko
3. Mshelwa	Ndaba
4. Fanakhe	Ndaba
5. Landiwe	Shabalala
6. Ka Bheji	Shabalala
7. Luleka	Ndaba
8. Kankwaga	Ndaba
31. Ndibilishi	Ndaba
32. Zondani	Ndaba
33. Bonisiwe	Kubheta
34. Khumalo	
35. Maguni	
36. Mkhwanani	
37. Sindi	Msimanga
38. CoH	Ndaba
39. Mpliso	Maribuko
40. gogo	Maribuko
41. Joshiwe	Ndaba
42. Maguni	
43. Maguni	
44. Nonkandazo	Zungu
45. Neomikayise	Maguni
46. Stebe	
47. Lucky	Shabalala
48. Zwane	
49. Shabalala	
50. Shabalala	
51. Sibongile	Mpulo
52. Ndaba	
53. Neli	Ndaba
54. Maguni	
55. Bufe	Ndaba
7. Fisoni	Mpulo
10. Sonele	Hlatshwayo
12. Gini-seka	Ndaba
13. Duduzile	Ndaba
14. Tshengisiwe	Ndaba
15. Bukisiwe	Ndaba
16. Buji-siwe	Ndaba
17. Celequana	Msimanga
18. Tloble	Msimanga
19. Sulubha	Mkhwanani
20. Nanzeleni	Maguni
21. Mthoko	Mkhwanani
22. Thokozani	Maguni
24. Khekiwe	Ndaba
25. Neli-siwe	Mpulo
26. Winkle	Ndaba
27. Siyera	Ndaba
28. Khosi	Hlongwane
29. Sizwe	Hlongwane
30. Bheki	Zimba

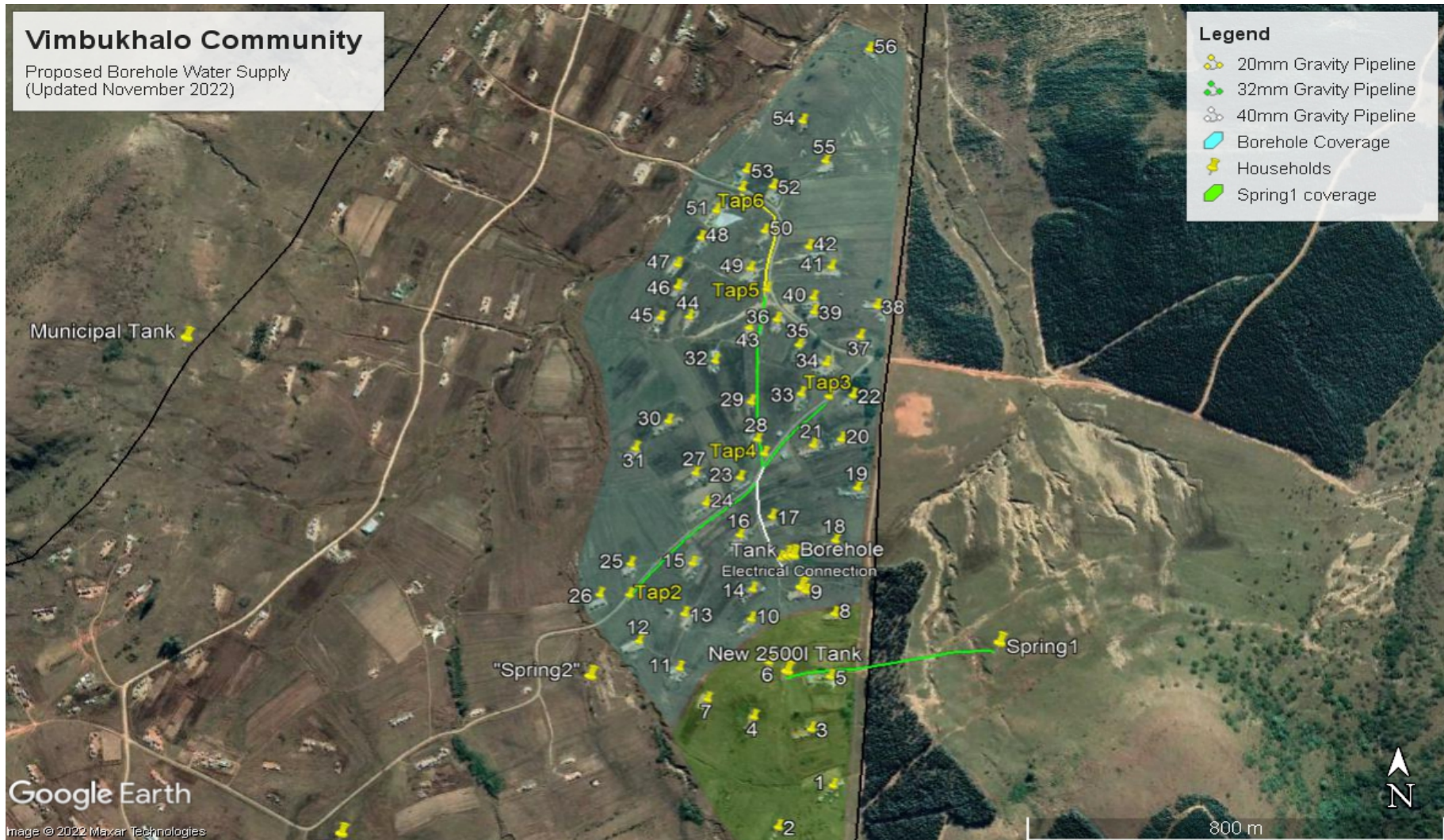


Figure 9: The map outlining the water sources in Vimbukhalo and the proposed scenarios for refurbishment of the borehole and development of a spring on SAPPI land bordering the community. The households that can receive water from these developments are numbered and marked in blue and green respectively.

This was followed by a committee meeting with SAPPI, on the 13th of October.



Figure 10: Meeting at the Vimbukhalo hall with representatives of the ward committee and water committee and SAPPI. Present were Zaphesheya Luthuli(SAPPI Representative), Erna Kruger(MDF), Michael Malinga(MDF), Hlengiwe Hlongwane (MDF), Zibonele Sithole(ward committee), Jerome Ndaba (SAPPI forum) and Mama Dlamini(SAPPI committee secretary)

Zaphesheya Luthuli is the community representative for Vimbukhalo. She confirmed that SAPPI has a long history in Vimbukhalo, often conflictual and that looking at a water source other than the borehole could be a move forward. She did mention though that there may be difficulties in working with this spring as SAPPI is very protective of their land holdings and want to limit movement of people on their properties. She undertook to speak to the relevant plantation managers to discuss this option and promised to convey a decision soon. The proposal has been shared with the Engineering and Environment Unit of SAPPI, who have done a site visit. A decision cannot be made immediately as the proposal involves the disturbance of land and water catchment area. Therefore consultation will be taking place in the last week of November 2022, will the other business units (legal, resources etc) in order to make an informed decision internally.

The work on the yield testing of the borehole was undertaken by Geocon Consulting and midlands Pumps and started in the week of 27th of October. This entailed a few different processes including a step discharge test, a constant discharge test and recovery monitoring, which took 3-4 days to complete. The community temporarily installed 2x 2500l JoJo tanks alongside the present header tank to ensure the capture of as much of this water as possible to use in the interim.

Figure 11: Right: The piping from the borehole yield testing is shown in the foreground. And Far right: Community members levelled platforms for the two extra JoJo tanks so that water could be stored temporarily for the community.



The technical report is attached **'Vimbukhalo BH1 test pumping report_Midlands Pumps_20221101'**

The recovery of the water level for the 24hour recovery monitoring was poor and was only 61%. The recommended available daily abstraction is 6.40 kl/day within an 8hr pumping cycle, to allow enough recharge for subsequent pumping. A resting period of a day or two between pumping cycles would be ideal. Water quality was classified as Class II, which is unfit for human consumption without treatment, due to higher than recommended levels of fluoride, coliform bacteria and general bacteria. It is recommended that another water source needs to be used by households to alternate the use of this borehole water, as long-term use of water with high levels of fluoride can harm recipients' teeth through discoloration. The other treatment option is reverse osmosis. Coliforms bacteria can be easily treated through boiling

or adding of household Jik to the water. The consultant suggested a further quality test be undertaken to check if levels remain high or whether it is an intermittent issue.

A new pump is to be installed that can pump the suggested 6,4kl in an 8- hour cycle. According to the consultants, consistent use of this one borehole will not affect the basal flow of the underground water in this area negatively.

1.3 GOVERNANCE AND WATER STEWARDSHIP

1. *CRA learning group reviews and planning*

This concludes the requirement under 1.3.6.1a – Review and planning meetings with a minimum of 2 CRA learning groups.

Focus group sessions for review and planning were held with 5 CRA learning groups:

- Stulwane (2022/08/19)
- Ezibomvini (2022/08/17)
- Eqeleni (2022/08/18)
- Vimbukhalo (2022/08/16) and
- Emadakaneni/ Emahlathini (2022/08/30)

The guide for running the focus group sessions is presented in Annexure 2 below. This provides guiding questions for discussions within the groups. The sections include general CA implementation, experimentation, marketing options and farmer centres and planning for the coming season. Below summaries are provided for all five groups combined under these headings.

CA- General implementation

Most of the farmers are still very pleased with the CA practise. They testified that this kind of farming has increased their yields and the quality of the produce. They have recognized that CA reduces soil erosion and improves the quality of their soil as they are protected from the sun and other elements. The farmers CA less tiring and easier than the normal cropping practices.

For the 2021/22 planting season smallholders involved in CA experimentation and implementation did not receive any inputs support, for their planting season. In past years, input for the CA trials have been provided initially at not cost and later at subsidised rates. This lack of support came at a time when inputs costs suddenly almost doubled and certain inputs became very difficult to access, after the KZN social unrest. Farmers all managed to plant their CA plots, although most “skimped” on herbicides and pesticides

CRA learning groups were very appreciative of assistance arranged through MDF for use of the Okahlamba LM tractors to pull the two-row no till planters and assist farmers in planting both the CA trials and their control plots. The drivers however have little experience in managing no till planters and caused a lot of damage to the planters by driving across the fields too fast. In Stulwane the farmers have come together to pay a annual fee of R100 each for use of the planters as a maintenance fund. This has worked very well, despite a few of the farmers renegeing on the contributions.

The heavy rainfall towards the ned of the season – between January and April 2022 had devastating consequences in the communities, through washing away of roads, and homes. Some participants’ fields also had a lot of run off damage – although the CA fields performed well in comparison to their normal fields and those that were ploughed washed away almost completely.

Most of the farmers practicing CA for more than 4 years managed to realize good yields for maize from their CA plots despite the heavy rainfall. Bean harvests were almost completely decimated.

Livestock invasions in the unfenced fields was a big problem in almost all the villages as the agreements to send cattle to the mountains in summer to allow for cropping have not been adhered to by livestock owners- given the fast deterioration of veld condition. The latter is due to overgrazing and four years of heat and below average rainfall, then followed by exceptionally high rainfall.

Participants felt that the one maize variety PAN53, an old generic hybrid coped the best with these new wet challenging conditions, as the maize cobs mature closed and as a result suffered a lot less form water damage and rotting. Pan53 however takes a long time to mature and is thus more susceptible to diseases, of which there was a high incidence in this season. Participants felt that the short season maize has a number of distinct benefits, in that it can be planted alter and

matures fast, despite the cobs being smaller than for the generic hybrids. They like the idea of planting different types of maize that can accommodate a range of different conditions, as it is impossible to know exactly what will happen in a season.

There was also the recognition that soils are slowly acidifying again after lime application 3-4 years ago and participants asked for assistance in procurement of lime – mostly transport as they offered to pay for the lime itself.

Farmers also undertook to discuss their issues with the livestock committees in their villages and to impress upon the livestock farmers that cropping is also an important activity in the area and needs to be respected.

They further suggested that those who are not yet members of village savings and loan associations should join, as these groups assist a lot in having finances available for planting.

Some farmers stressed that the two row planters that are shared in the groups need to be looked after properly. If a farmer doesn't clean out the fertilizer after use, corrosion occurs and then the planter doesn't work properly when the next participant wants to use it. They then need to spend time on cleaning and maintaining the planter before using it. Mr O Kubone, the KZNDARD extension officer joined in four of these planning sessions (Stulwane, Vimbukhalo, Eqeleni and Ezibomvini) as these groups are also setting up cooperatives under the auspices of the Department to be able to benefit from support being offered.

Experimentation

Close spacing: This practice is promoted in the CA trials to reduce the weeding load. It is however not well liked by farmers despite reducing the need for weeding substantially, as it does cause heavy shading of the intercropped beans in high rainfall seasons and reduces the yield of the beans. Some farmers still believe it also reduces the yields in maize, despite having been shown the results of the yields for a number of consecutive years- which shows the exact opposite.

Herbicide application: The heavy and continuous rainfall made the effective use of herbicides almost impossible. Roundup for example needs around 10 days to create good dieback of the weeds and if it rains in between or 1-2 days after spraying it is largely ineffective. It was also not possible to spray again as the rain thwarted these attempts as well. As a result, weeds were a major challenge this season. There is a growing recognition among the farmers that herbicides can damage their crops and specifically seeds for cover crops and legumes and reduce subsequent growth. They are more appreciative now of the burn down herbicide options as compared to the systemic ones such as Roundup, as these do not have long lasting effects on their crops and soil, despite being less effective.

Strip cropping vs the 10x10m blocks: Farmers prefer strip over plots, as the spacing there can more easily be 'relaxed' and they believe it increases the yield of their maize. There is also less space taken up by paths between the plots. In the areas where both 10x10's and strips have been used for a number of years, farmers have recognised that they are very similar, just a different way of laying out the plots

Cover crops: Most farmers did not harvest any seed from their cover crops as it was eaten by birds before it even matured, especially sunflowers. Sorghum matured later and thus farmers could harvest some here. They did feed the biomass of their goats and cattle

Maize only, vs maize and bean intercropping: Farmers say that the maize only plots have big cobs, and M+B maize is smaller in size. Generally, there is not much agreement on the benefit of intercropping, as some farmers "swear" by it as a useful practice that improves yield of both maize and legumes and other believe the exact opposite.

Crop rotation: The plots that were previously planted cover crops give great yields when planted to maize. Farmers say the cover crops makes the soil fertile., helps to shade the soil and keep it healthy, improved the yield and health of the follow on crop and provides some feed for their livestock. The difficulty comes in harvesting seed to be able to re plant the cover crops.

Markets and farmer centres

The farmer centre in Ezibomvini is still very popular and well used but has not been tried out effectively in the other villages. The local marketing stalls set up first at the pension pay out points and later in Bergville town itself has worked very well. Farmers make a little income every time they join these markets and can sell their field crops there as well. Mostly they are planting for food security, and only selling of surplus if they have. They also sell informally to neighbours.

Planning for coming season

In all the villages farmers undertook to pay towards their inputs and pay a subsidised price for the CA trial inputs. They requested access to the short season maize and also suggested that PAN53 may be a better option in really wet seasons, when compared to the other varieties they have planted. Plans we put in place for payments and also for access to the Okahlamba tractors, as these have been made available again for a two- week period in mid-November. Farmers undertook to work closely with the tractor drivers to ensure they do it properly this season.

2.

There have been a number of relationships built and improved upon between government department officials, and the learning groups. These include:

- Closer cooperation between the local councillor Mr Dladla and the communities, specifically in Vimbukhalo
- Closer cooperation with the KZNDARD extension officer Mr Kubone and 4 of the groups starting cooperatives
- A strong collaborative arrangement between the Marketing committees, MDF staff and uThukela Development Agency, which is providing support to the marketing in a number of ways – facilitating setting up stalls in Bergville, offering of transportation of produce to markets, joint marketing days at government events to advertise the work of these groups and negotiations related to improved livestock auctions for these communities.
- A close relationship with the LED unit of the Okahlamba Local Municipality and the municipal manager Mr Malinga.

The table below summarizes stakeholder interactions for the period (July- December 2022), which were attended by members or representatives of the learning groups and MDF staff.

Table 12: Stakeholder interactions summary. July-December 2022

Activity	Description	Dates
uThukela Development Agency	Fresh produce marketing, 1 st week of every month	Oct-Dec 2022
SAPPI	Meeting with Vimbukhalo community representatives	13 th October 2022
ESS research - WRC	UKZN research in ecosystem services mapping supported by MDF: water walks, focus group discussions, planning, eco-champs, spring protection work in Stulwane, thematic and mapping workshops in Ezibomvini and Stulwane	23 rd September 2022 14 th October 2022
WWF Water source forum	Stakeholder meetings, online and in person at OLM board room Bergville	29 th September 2022 10 th November 2022
SANBI- Living Catchment Programme	Social facilitation workshop – Western Cape; M Malinga Olifants' water indaba: M Malinga, N Mbokazi, H Hlongwane	3 rd -5 th October 2022 30 th Oct-2 nd Nov 2022
UKZN and Adaptation Network	Ukulinga Howard Davis memorial symposium: Presentation on CbCCA in Bergville: E Kruger T Mathebula, N Sibiya	12 th October 2022

2 GAPS AND CONSTRAINTS

Smallholder farmers in the area have suffered from three large consecutive systemic shocks; COVI-19, social unrest and increased prices due to sharp rises in fuel costs as a result of the Ukraine war. This has made it difficult for some of them to continue to afford their field cropping inputs and activities. As a result, some of the control plots, which they undertake entirely from their own budgets and effort, may be small this year than anticipated.

In addition, early season rainfall has been quite low, leading to later planting. It has also meant that pre-spray of plots for weed control could not be undertaken and is likely to lead to substantial weed competition in this season's trials.

Roads in the area are still very bad, after substantial damage late in the rainy season of 2021-2022 and lack of subsequent repairs. It means that sedans and smaller vehicles are unable to enter into the villages when it is wet, which has necessitated the rental of an additional LDV.

Availability of some of the inputs such as maize seed and lime in the local towns of Bergville and Winterton has been limited. This has necessitated multiple trips as well as brining some of the inputs from Pietermaritzburg.

The installation of a local weather station in the villages where work is being undertaken is lagging behind, as EFTEON is taking time to work out its internal operational procedures. This will unfortunately mean relying again on the data from the Cathedral Peak weather stations.

3 COMMENT ON FINANCIAL REPORT

Table 3: Summary of expenditure on CRA activities: September-December 2022

Cost breakdown	Nov-22	Remainder (2022-2023)	Budget (2022-2024)
Inputs for Conservation Agriculture	R115 809,38	R9 190,62	R250 000,00
Spring Protection	R75 995,34	R142 004,66	R218 000,00
Engineering fees	R44 180,71	R17 919,29	R96 447,00
	R235 985,43	R169 114,57	R564 447,00
Total 2022-2023	R405 100,00	42%	

From the above table the project team have thus far used R235 985,43 of the funding available for implementation of activities, which is 58% of the budget available for 2022-2023. The remainder of the input costs for CA will be spent on the fodder supplementation trials in January as well as laboratory costs for sampling and calculation of water productivity results late in the season. The spring protection budget expenditure is on track as most of the procurement of equipment has been done. Left to do is the actual implementation, which will consist of a large portion of sweat equity from the community. It is likely that some of the budget will remain and thus the team is following up in Ezibomvini and Stulwane to potentially intervene there as well, once the Vimbukhalo scheme is complete.

NOTES ON EXPENDITURE

Expenditure has been compiled up until the 23rd November 2022

1. A disbursement of R556 500 was received on the 27th July 2022
2. A total of R524 724 has been spent between August and 23 November 2022
3. The budget has been changed to reflect the 2year period for which funding has been provided, rather than the three-year process originally budgeted for.
4. Expenditure is on track, with a slight under expenditure thus far on capital assets (spring protection). and meetings and a slight over expenditure on travel and subsistence.

Below is a summary of the Financial report.

4 FINANCIAL REPORT

The financial report excel sheet is attached as a separate document: "**WWF-ZA06370C-Smallholder CRA and Water Provision_MDF_ Financial reporting template_Milestone 3_20221123**" Documentation for explaining full expenditure summaries is available on request.

Project number and Name:		WWF_184-ZA063760C – Water stewardship Mahlathini						
Completed by:		Erna Kruger						
		ESTIMATES		ACTUALS				
Code	Description	Total Project Budget	Current Year budget	Previously Reported Actuals	Current Year Actuals	Total Actuals to date	Total Current Year Budget minus Current Year Actuals (D - G = I)	Total Project Budget minus Total Actuals to date (Variance) C - H = J
	Reporting Period	May 2022-April 2024	May2022-April 2023		May 2022-December 2022 (1Sept2022-20)			
	A - OPENING BALANCE	R 0,00	R 0,00	R 0,00	R 0,00	R 0,00	R 736 500,00	R 0,00
	Approved WWF Income	R 1 285 000,00	R 0,00	R 0,00	R 556 500,00	R 556 500,00	-R 556 500,00	R 728 500,00
	B - TOTAL income + o/balance	R 1 285 000,00	R 0,00	R 0,00	R 556 500,00	R 556 500,00	R 180 000,00	R 728 500,00
	EXPENDITURE by code							
1	Staff costs	R 432 000	R 216 000	R 0,00	R 162 000,00	R 162 000,00	R 54 000,00	R 270 000,00
2	Third party fees	R 96 447	R 48 000	R 0,00	R 44 180,17	R 44 180,17	R 3 819,83	R 52 266,83
3	Travel and Subsistence	R 211 770	R 109 350	R 0,00	R 105 645,29	R 105 645,29	R 3 704,71	R 106 124,71
4	Capital Asset costs	R 218 000	R 109 000	R 0,00	R 75 995,34	R 75 995,34	R 33 004,66	R 142 004,66
5	Operating expenses	R 250 000	R 125 000	R 0,00	R 115 809,38	R 115 809,38	R 9 190,62	R 134 190,62
6	Meetings / Education / Training	R 20 533	R 10 267	R 0,00	R 0,00	R 0,00	R 10 266,50	R 20 532,50
7	Project Promotion / Communication/ Printing / Publication	R 56 250	R 28 125	R 0,00	R 21 093,75	R 21 093,75	R 7 031,25	R 35 156,25
	C - TOTAL EXPENDITURE	R 1 284 999,50	R 645 741,50	R 0,00	R 524 723,93	R 524 723,93	R 121 017,57	R 760 275,57
	D - CLOSING BALANCE	R 1 284 999,50	R 645 741,50					R 760 275,57

5 TWO COPIES OF ANY PUBLICATIONS

Presentation of a paper: *“Ukulinga symposium. CbCCA improved resilience in Cnetral Drakensberg – E Kruger incl policy opints_20221014”*

The presentation is attached to this report.

6 SIGNIFICANT PLANNED ACTIONS FOR THE FINAL REPORT

Outcome	Activities	Planned actions (Milestone 8)
Livelihood security at household level	1. Learning group planning and seasonal review sessions	<ul style="list-style-type: none"> ✓ KZN: Ezibomvini, Stulwane, Vimbukhalo, Eqeleni, Madzikane, Gobizembe Mayizekanye, Ozwathini, Spring Valley, Ngongonini, Plainhill ✓ EC: Nkau, Rashule, Ned, Nkasele, Mechachaneng, Mngeni
	2. Prioritized baskets of appropriate practises	<ul style="list-style-type: none"> ✓ Write up of final results in terms of yield, growth, learning, experimentation ✓ Section on challenges and successes with recommendations for future actions
	3. Learning and implementation support	<ul style="list-style-type: none"> ✓ Winter fodder supplementation progress report ✓ Continuation of gardening training and support in the EC
Social agency for LED and social safety nets	1. VSLAs, business development, farmer centres	<ul style="list-style-type: none"> ✓ 26 VSLA's in KZN; monthly mentoring and progress with bulk loan funds ✓ Summary of marketing strategies and approaches, income and livelihood benefits for participants
	2. PM&E system and monitoring	<ul style="list-style-type: none"> ✓ Finalization of resilience impact assessments (x3) and snapshots (min 30)
	3. Iterative PID approach for improved adaptation and innovation	<ul style="list-style-type: none"> ✓ Discussion and recommendations

8. LIST OF ANNEXURES

Complementary information, including photographs.

ANNEXURES:

Annexure 1: WWF-Farmers database_1st draft

Annexure 2: CA reviews: Focus group and planning guide

Area	Village	GPS_Coordinates	Name	Surname	Age	Gender	CA trial size in sqm	Farming practices	CA - date started	Field cropping (ha 's)	Gardening (ha's)	Livestock	Soil fertility practices	Crops planted	Crops planted
								1. Conventional 2. Transition 3. Agroecology				1. Cattle, 2. Goats, 3. Broilers, o, 4. Layers, 5. Trad Poultry, 6. Pigs,		(incl rough area for ea)	Vegetables
			Bold=CMTs	Blue= fenced stover trial		1 Female 2. Male									
Bergville	Ezibomvini	28.51836 S, 29.23726 E	Phumelele	Hlongwane		1	1000	3	2014	0,45	0,025	Cattle (3), layers(20), broilers(20), Pigs (2)		Maize, beans, (0,1ha ea)	spinach, cabbage, onions, beetroot, Chinese cabbage
Bergville	Ezibomvini	28.863872 S, 29.392221 E	Landiwe	Dlamini		1	1000	3	2015	0,25				Maize, beans, (0,1ha ea)	
Bergville	Ezibomvini	28.8668863 S, 29.3890554 E	Zodwa	Zikode		1	1000	3	2014	0,25				Maize, beans, (0,1ha ea)	
Bergville	Ezibomvini		Nombono	Diadla		1	1000	3	2016	0,4				Maize, beans, (0,1ha ea)	
Bergville	Ezibomvini		Mantombi	Mabizela		1	1000	3	2016	0,25				Maize, beans, (0,1ha ea)	
Bergville	Ezibomvini		Cabangani	Hlongwane		1	1000	3	2015	0,2				Maize, beans, (0,1ha ea)	
Bergville	Ezibomvini		Phumelele	Gumede		1	400	3							
Bergville	Ezibomvini		Velephi	Zimba		1	400	3							
Bergville	Ezibomvini		Dumazile	Dlalisa		1	400	3							
Bergville	Ezibomvini		Thoko	Gumede		1	400	3							
Bergville	Ezibomvini		Nonhlanhla	Zikode		1	400	3							
Bergville	Ezibomvini		Balungile	Mkhwanazi		1	400	3							
Bergville	Ezibomvini		Ntombenhle	Hlongwane		1	400	3							
Bergville	Ezibomvini		Nonhlanhla	Dlamini		1	400	3							
Bergville	Ezibomvini		Siyabonga	Hlongwane		1	400	3							
Bergville	Ezibomvini		Lucky	Hlongwane		1	400	3							
Bergville	Ezibomvini		Sayinile	Gumede		2	400	3							

Bergville	Ezibomvini		Hlulekile	Ndlangisa	2	400	3		
Bergville	Ezibomvini		Thuli	Madinane	1	400	3		
Bergville	Ezibomvini		Ncamsile	Dlamini	1	400	3		
Bergville	Ezibomvini		Sthabiso	Gumede	1	400	3		
Bergville	Ezibomvini		Nomfundo	Jali	2	400	3		
Bergville	Ezibomvini		Tozi	Zikode	1	400	3		
Bergville	Ezibomvini		Thulani	Dlamini	1	350	3		
Bergville	Eqeleni		Ntombakhe	Zikode	2	1000	2		0,6
Bergville	Eqeleni	28.8761880 S, 29.3657064 E	Sthabiso	Manyathi	1	1000	2	2013	0,45
Bergville	Eqeleni		Thuliile	Zikode	2	1000	2		0,45
Bergville	Eqeleni	28.8755776 S, 29.3654576 E	Nah	Khumalo	1	1000	3	2013	0,2
Bergville	Eqeleni		Lungile	Diadla	1	1000	3		0,2
Bergville	Eqeleni		Nomavila	Ndaba	1	1000		2015	
Bergville	Eqeleni		Tholwephi	Mabaso	1	1000			
Bergville	Eqeleni	28.8689927 S, 29.3732873 E	Nomusa	Hlongwane	1	1000		2013	
Bergville	Eqeleni		Balungile	Sishi	1	400		2016	
Bergville	Eqeleni		Simephi	Nkosi	1	1000			
Bergville	Eqeleni		Sizeni	Dlamini	1	1000			
Bergville	Eqeleni	28.8770681 S, 29.3553749 E	Cashephi	Khumalo	1	1000		2014	
Bergville	Eqeleni		Buzeleni	Mdluli	1	1000			
Bergville	Eqeleni		Makhosonke	Mabizela	1	400			
Bergville	Eqeleni		Nelisiwe	Msele	1	1000		2017	
Bergville	Stulwane	28.910886 S, 29.376000 E	Dombi	Dlamini	1	1000		2014	
Bergville	Stulwane		Nothile	Zondi	1	1000		2016	
Bergville	Stulwane	28.922746 S, 29.367281 E	Thulani (Danger)	Dlamini	1	1000		2015	
Bergville	Stulwane	28.860359 S, 29.355345 E	Khulekani	Diadla	2	1000		2013	
Bergville	Stulwane	28.926753 S, 29.372192 E	Nondomiso	Zondi	2	1000		2013	
Bergville	Stulwane		Hluphizwe	Zondo	1	1000			
Bergville	Stulwane		Bangeni	Dlamini	1	400		2016	
Bergville	Stulwane	28.912699 S, 29.365943 E	Nokwaliwa	Hlongwane	1	1000		2014	

Bergville	Stulwane		Slindile	Mpinga	1	1000	2014
Bergville	Stulwane		Tombi	Dlamini	1	400	
Bergville	Stulwane		Ntombifuthi	Mkhize	1	1000	
Bergville	Stulwane		Eunice	Mkhize	1	1000	
Bergville	Stulwane		Nokulunga	Dubazane	1	1000	
Bergville	Stulwane		Kholiwe	Dlamini	1	1000	
Bergville	Stulwane		Thabisile	Buthelezi	2	400	
Bergville	Stulwane		Boniswa	Hlongwane	1	400	
Bergville	Stulwane		Matolozana	Gumbi	1	400	
Bergville	Stulwane		Ncamizile	Zikode	1	400	
Bergville	Stulwane		Zenande	Dlamini	1	400	
Bergville	Stulwane		Winile	Mabaso	2	400	
Bergville	Stulwane		Makhethi	Diadla	1	400	
Bergville	Stulwane	28.920462 S, 29.368973 E	Fikelephi	Zuma	1	1000	2013
Bergville	Stulwane		Dombolo	Buthelezi	1	1000	
Bergville	Stulwane		Thembi	Mpinga	1	1000	
Bergville	Stulwane		Sbongile	Mpulo	1	400	
Bergville	Vimbukhalo	28.877707 S, 29.412653 E	Zweni	Ndaba	1	1000	2014
Bergville	Vimbukhalo		Bukisiwe	Mpulo	1	1000	
Bergville	Vimbukhalo		Zibonele	Sithole	1	1000	2016
Bergville	Vimbukhalo	28.52159 S, 29.24837 E	Balindile	Makhathini	1	1000	2014
Bergville	Vimbukhalo		Bangizwe	Ndlovu	1	1000	
Bergville	Vimbukhalo		Bangeni	Ndaba	1	1000	
Bergville	Vimbukhalo		Dubeleni	Gumede	1	1000	
Bergville	Vimbukhalo		Buyisile	Ndaba	1	1000	
Bergville	Vimbukhalo		Zandile	Mchunu	1	1000	2016
Bergville	Vimbukhalo		Sindisiwe	Makhathini	1	1000	
Bergville	Vimbukhalo		Thakasile	Ndaba	1	1000	
Bergville	Vimbukhalo		Sulubha	Mkhwanazi	1	1000	
Bergville	Vimbukhalo		Jerome	Ndaba	2	1000	2016
Bergville	Vimbukhalo		Sizani	Ndaba	2	400	

Bergville	Vimbukhalo	Shongani	Gumede	1	400	
Bergville	Vimbukhalo	Ntombi	Zimba	2	400	
Bergville	Vimbukhalo	Zandile	Zimba	1	400	
Bergville	Vimbukhalo	Lindiwe	Zimba	1	400	
Bergville	Vimbukhalo	Khosi	Hlongwane	1	400	
Bergville	Vimbukhalo	Shoti	Mazibuko	2	400	
Bergville	Vimbukhalo	Thoko	Mpulo	2	400	
Bergville	Vimbukhalo	Mtobho	Dlodlo	1	400	
Bergville	Vimbukhalo	Pawlose	Nyoka	1	400	2016
Bergville	Vimbukhalo	Tshithana	Ndaba	2	400	
Bergville	Vimbukhalo	Khethiwe	Ndaba	2	400	
Bergville	Vimbukhalo	Phumelele	Shabalala	1	400	
Bergville	Vimbukhalo	Xolile	Gambu	1	400	
Bergville	Madakaneni	Nokuthula	Mabaso	1	1000	
Bergville	Madakaneni	Dumazile	Hlongwane	1	1000	
Bergville	Madakaneni	Yengiwe	Mthembu	1	1000	
Bergville	Madakaneni	Phumzile	Zondo	1	1000	
Bergville	Madakaneni	Sbongile	Zikode	1	1000	
Bergville	Madakaneni	Xolile	Zikode	1	1000	
Bergville	Madakaneni	Mbhijo	Dladla	1	1000	
Bergville	Madakaneni	Phumelele	Dladla	2	400	
Bergville	Madakaneni	Fikile	Hadebe	1	400	
Bergville	Madakaneni	Phetheni	Dladla	1	400	
Bergville	Madakaneni	Nokuthula	Mabaso	2	400	
Bergville	Madakaneni	Kwanele	Nxumalo	1	400	
Bergville	Madakaneni	Sarafina	Hlongwane	2	400	
Bergville	Madakaneni	Buyisiwe	Sithebe	1	400	
Bergville	eMahlathini	Buyisiwe	Hlongwane	1	1000	2017
Bergville	eMahlathini	Makhumalo	Sibisi	1	1000	
Bergville	Ezinyonyane	Mbukeni	Hadebe	1	1000	
Bergville	Ezinyonyane		Mashelembe	1	400	
Bergville	Ezinyonyane	Monica	Phakathi	1	400	

Bergville	Ezinyonyane	Mama	Mvula	1	400
Bergville	Ezinyonyane	Mthokozisi	Shange	1	400
Bergville	Ezinyonyane			1	400

ANNEXURE 2: CA REVIEWS: FOCUS GROUP PLANNING GUIDE

SECTION A: GENERAL CA

1. What have been the highlights of the past season?
2. What are some of the issues or problems of the past season?
3. What are the possible solutions to challenges faced?

SECTION B: CA EXPERIMENTATION

1. What are the observed differences between CA and normal planting practices? (include for example soil fertility, soil health, compaction, run-off, water holding, pest and diseases, yields)
2. What were the observed yields? Can you explain why they were either good/bad (maize, legumes and cover crops)
3. Explain outcomes of use of herbicides – describe how these were used and what the outcomes were? How much hand weeding was required? What could work better?
4. Explain the outcomes of the close planting in CA experiments vs normal planting spacing.
5. Explain use of CA planters (MBLI, animal drawn, 2 row). How did the arrangements work? Explain why CA planters used or not..
6. What are the observed differences between the 10x10s and strip cropping?
7. What are the observed outcomes of planting cover crops? Explain which ones have been planted, how and how they have been used?
8. What are the observed outcomes of the mixed cropping (M+B and M+CP) when comparing to single planting of M?
9. What are the observed outcomes of crop rotation?
10. What are the observed outcomes of planting perennial fodder species. Explain which were planted, how and how it worked.
11. What were the observed differences between the normal maize planted (OPVs and hybrids) and the short season (early) maize planted?
12. What are observed outcomes of fungal infection of cobs and potential mycotoxins?

SECTION C: INPUT COSTS AND SAVINGS GROUPS

Inputs

1. How will you plan to buy your own inputs without input subsidy assistance?
2. How much can the savings group assist? What size loans or share outs are to be used for cropping?
3. Is bulk buying for the learning group an option? How can you arrange this? (lists, collection of monies etc...)

SECTION D: MARKET OPTIONS & FARMERS CENTRE

1. Can you give an indication of marketing options and how well this has gone?
2. Can you give a rough estimate of monies made from field crops in this season.
3. % of group who has been eating only and eating and selling...

SECTION E: PLANNING FOR THE COMING SEASON

Discuss options for the coming season, what each person wants to plant and how. Also, with the understanding that inputs can not be provided. Support can be given for new crops and varieties (e.g. short season maize) and also for planting of cover crops and fodder species.

Decided about planting of 10x10s and strips and which crops to be tried.

Area:

Village:

Name and surname	Plot type: 10x10 and/or strips	Plot size (400/1000)	SS maize (yeelow/ white)	SCC	WCC	Cowpea	Pumpkin	Jugo beans	turnips	Lespedeza	Pensacola	Other