Umkhomazi restoration project: Inception report; October 2019

Preamble

There are considerable issues related to land and water management practices in the communal tenure areas around Impendle, with resultant high levels of soil erosion, over grazing and wattle infestation and encroachment, as the three main issues for siltation of streams and rivers in the area.

The Community Work Programme and the Working for Water process under the Extended Public Works Programme have both been active in this area. This has led to a high expectation for payment to do any work not specifically within the confines for peoples' homesteads and fields. This attitude is unfortunately confounded by the way communal tenure arrangements have developed over time.

The Traditional Authorities (TA) oversee land administration and land use regulations. The latter consists mainly of arrangements around summer and winter grazing of livestock (usually livestock are allowed into the built up areas and fields in winter and sent to the hills/ mountains for grazing in summer), allocation of fields and water access to individuals and groups in the community and use of wattle and natural resources for firewood and other purposes. The emphasis is on use, as opposed to management and conservation of resources.

This process is focused on finding opportunities for resource management options that community members are prepared to undertake and developing reciprocal arrangements for such activities. As such the facilitation approach has focussed on availability of resources, issues and changes within these and peoples' agricultural activities, to tease out some options for individual and joint activities that could lead to improved soil and water management and potential incentives to motivate such activities.

Two pilot sites, with different community -based management regimes have been identified:

1. ***Nxamalala in Impendle***; A typical communal tenure village, where the TA is respected and active and also where the village is in an upper catchment (to allow for the greatest potential impact in restoration work) and is contained (a limited and defined number of households in the village – to allow for community coherence) and
2. ***Ntwasahlobo in Stoffelton***; A historical 'black spot' with private landowners and tenants; where the land use and management is more directly dictated by the landowners, in conjunction with the TA in the area. Again, a contained village in the upper catchment of this area was selected.

Methodology and process

Community level entry was negotiated through the traditional authorities. A two-day community level process was then undertaken, following the facilitation process outline below.

Table 1: Facilitation outline for Community level workshops

DAY 1	PURPOSE	PROCESS	REQUIREMENTS
INTRODUCTION			
Community and team introductions	- Outline of Umkhomazi restoration project -Introduction of team -Community introductions (incl farming activities)	- Use Info sheet produced by the INR and topographical maps awa -photographs and visual aids of typical erosion and climate change issues in this area	**Attendance register** - with columns for farming enterprises (so that each participant can tick what they do) - in English and Zulu **Name tags;** stickers, kokis

Purpose of the day	Introduction of the organisation/s and purpose of this workshop- link to already ongoing activities if possible and introduce visitors and other stakeholders involved	talk to CC necessitating adaptation from us - we may need to change how we do things and what we do to - This w/s is to help us explore options for such changes	Flipstand, newsprint, kokis, data projector, screen, extension chords, plugs - double adaptors, cameras
PRESENT SITUATION			
Present livelihoods and farming situation - discuss impacts related to CC	Use a series of impact pictures- from the local situation. Include the 5 categories (and describe them to the group) - water management (increased efficiency and access), soil management (erosion control, fertility, health), crops, livestock and natural resources	Impact pictures- either ppt or printed on A4 to facilitate dialogue (or both) Record community comments	**Power point presentation pictures**
PAST, PRESENT, FUTURE			
Discuss farming activities as they have changed, what they are now and what may happen in the future if the present trends continue	SMALL GROUPS (5-10people): facilitated discussion on farming activities (include the 5 categories) - prompt for all five and keep conversation focussed OR Facilitate a shorter plenary discussion on how things are changing (if time is pressing)	Important to note and record any discussions around changes and adaptations- so things people are already doing to accommodate for changes - also where they are not sure what to do	Small groups; each needs a facilitator and recorder
TEA	Fruit (apples, oranges, biscuits, juice and water, paper cups (lots) and plates…		
REALITY/IMPACT MAPS			
	Summarise impacts and local activities POSSIBLE SOLUTIONS: things that people know, have changed, have tried and or are trying to deal with the changes	Prompt for social, economic, environmental impacts as well if these don't come up in the group Also make a separate list on newsprint of names of people trying things (this is to facilitate h/h visits on day 2)	Small groups; each needs a **facilitator and recorder**
CLOSURE	REPORT BACKS - of possible solutions PLANNING FOR DAY 2 - choose 3-4 participants for household visits and ask for a small group of other interested individuals to join. Decide on venue and time (12 noon) for continuing with practices	Households to be within walking distance hopefully. Otherwise drive these 3-4 participants around and meet for focus group thereafter	Rapporteurs need to be chosen from the group to summarise the solutions in the report backs [5min/group]
LUNCH			
DAY 2: HOUSEHOLD VISITS AND FOCUS GROUP DISCUSSION			
Household visits	To look at local adaptations and innovations; To assess the household and general resource situations; To start to elucidate criteria people use to make choices and decisions	Use questionnaire and fill in through semi structured interview and observations	
Implementation options focus group discussion	To summarise and discuss ideas suggested in Day 1 and on household visit walks To introduce some ideas also from the facilitation team To agree on potential options and follow-up	List and summarise different actions – and potential interest groups for the different activities Finalise process and dates for follow-up activities	Presentation of a range of practices using a power point presentation or visual aids of beast practice options.
LUNCH AND CLOSURE			

Nxamalala (Emapanekeni) process and outcomes

DATE: 15,16 October 2019
VENUE: Mr Duma:; Member of TA, linked closely to induna Mr Khumalo, under Nkosi Zuma (Mapanekeng village – 14 households in total – Some people were removed
ATTENDANCE: 12 participants (4 men, 9 women)
FACILITATION TEAM: INR; Zanele, MDF; Erna, Tema, Nonto, Lima; Nosiphephelo

Figure 1: Mapanekeng workshop participants, Day 1.

Upon entry, it was evident that the resource management processes for this village different somewhat from other villages n the vicinity; there was a lot more grass in the grazing areas, little to no burning, evidence of green patches where wetlands were still functioning and containment of the wattle "forests" along the ridges. There was also evidence of managed cutting of wattle. There was some evidence of erosion (dongas and gulleys), although at first glance most of these appeared to be stable , with some vegetation within and around the gulleys. This was discussed with the group as a way of introducing the process.

Day 1: Community workshop on farming and resource management

General discussion on resource management in the village

Figure 2: Left: Well grassed area, with green strip indicating a still functional wetland. Centre: Wattle "forest" on the slope with cut branches on the side and Right: Donga; reasonably stable with some vegetation in and around the gulley.

Comments from community members included the following:

- There is a highly functional dipping committee.
- There is an agreement not to burn in the area, to provide for more grazing for livestock. Fires that do happen are accidental or flow over from the commercial farm above.
- Some burning is done in the mountains in early spring for grazing for livestock. They are moved there in summer.
- Most of the men in the village own reasonably large numbers of livestock; including cattle, sheep, goats, horses, pigs and poultry.
- Water is obtained from the mountain through a protected spring, which is reticulated to a header tank and pipes with taps to each homestead. There is no lack of water here, but little municipal support

Many people would like to want to relocate to the area, but cannot due to local conditions. There is no real road access to the village – just a track that has to cross stream beds, which become flooder in summer, making getting in and out of the village difficult. It also means that at times children do not go to school, for this reason. The main requests for support from this community was support for building roads and bridges and also fencing of fields. On the walk it became clear that most of the households and homestead fields are well fenced 9around 4 were not), but that the request relates to wanting to expand cropping into the more communal unfenced areas surrounding the village.

People mentioned that they work together, that there is a local tractor for use in ploughing, but that people would still need more support in mechanisation and that the women need assistance with fencing of gardens and fields.
Most of the households have small vegetable gardens and dryland fields in the homesteads, but not all are actively using them, as cattle invasion and access to enough water can be an issue.

How have things changed over time?

- Dongas have increased over time (Mr Duma)
- When it rains there are big storms and erosion because of that… and also roads and paths are washed away and then cars cannot enter here (MamGwala)
- Crops get washed away due to heavy rains
- In the past people used to do field cropping with oxen a lot. Now there is not much… There is a need for fencing to control livestock
- Forests are now a lot less than before, but there is an increase of predators such as jackals in the wattle copses.
- The Wattle is taking over- issues with uncontrolled grazing there. Community wants them thinned out but not completely removed as trees for firewood are scarce.

MAIN REQUESTs FROM THE COMMUNITY

- ***Assistance with roads and bridges***
- ***Assistance with fencing***
- ***Assistance with control of Wattle; not removal as people use them, but thinning in a controlled manner***
- ***Assistance in control of dongas encroaching on homesteads***
- ***Contours need to be rehabilitated to control run-off***
- ***Conservation Agriculture in fields; for soil fertility and soil health improvement and to reduce erosion***

Present situation

- We have not really seen a difference in the amount of rain, just bigger storms and an issue with maintenance of soil and soil erosion control structures
- A TLB costs R600/hr. The municipality doesn't maintain the road here. The CWP also doesn't do anything here
- The Municipality doesn't assist here; Not much communication between community leaders and members here… Councillor doesn't help – no electricity here
- We grow small amounts in the gardens, maize, beans, potatoes, some cabbage and spinach.
- There is some erosion encroaching on the fields and homesteads….
- Sometimes livestock die in the dongas,
- We now keep them enclosed in kraals at night as they are vulnerable to predation otherwise…
- We also buy injections when they are sick, Lost 30 sheep to a disease – Scab on their skins…
- The problem is that the Wattle forests have become very thick. They are owned by Induna and Nkosi – but the community has permission to use it, for firewood and poles. There are no limitations placed on use … CWP were meant to clear – they just cut and leave the rubble and when it rains there are even bigger problems. No consultation with the community about how to do this and then this causes more problems.
- Some of the plantation belongs to MamZuma's family – but it belongs to the Nkosi originally.
- CWP brought muthi to kill the bigger trees, but now they have re-germinated. Chemicals did not work.
- When the women cut the trees, there are always new shoots growing
- Now no longer using the big fields further away because of cattle, only working in our homesteads. We use a tractor in our homestead plots. We pay for a tractor – for household food (maize, beans, potatoes, cabbages, tomatoes)
- The Extension officer from KZNDARD assists with sweet potatoes and cabbage…
- There is a group of women (isibonelo), registered as a cooperative. Not working together much. They are tired. Then there are problems with pests in the soil that eat potatoes (termites) and also pests for cabbages… Fencing was also stolen… The soils in the bigger fields are more damaged than the plots at peoples' homesteads… Some of the ladies are now old
- Some people still want to continue with planting…
- There are no markets for their products, (also led to collapse of their communal garden)
- Climate change has affected our yields
- There is no fertilizer to put in the fields.
- Lack of knowledge regarding recommended fertilizers
- Herbicides are used to control weeds

Past situation

- They used to have oxen and planters- now do not have any
- The area that is covered by wattle now used to be houses. With the new government people were asked to move to be closer together to allow for service provision. Not everyone agreed to move.
- Children used to be available to do herding and help, now they are in school. Now struggling more to look after the environment.
- Fields were fenced by the Department of Agriculture, prior to 1994. This was stolen a long time ago. Now fields are allocated by the Nkosi, for which payment is required and if they are not used they revert back to the Nkosi. It is around 30 years since the large fields were last ploughed.

Ideas for future

* Fencing for homestead plots
* Broilers and layers– for selling (they will be less work than cropping)
* Thinning of wattle copses
* Contours need to be rehabilitated, to control runoff…
* Correct use of fertilizers and herbicides

Day 2: Household visits and focus group discussion on options

Eight homesteads were visited; to check activities, donga encroachment and access to resources and a walk was taken to one of the wattle copses on the hillside. A summary of the bassline household information is provided in the attchment

Around 7 of the households are on one side of a large donga and stream and the rest are on the opposite side. On that side there is also access to taps with water from a spring in the mountain, but the water is not clean and not as reliable as on the near side. The municipality originally assisted with the spring protection and putting in the header tanks. There are also a few communal standpipes in the village- which are not really used, as people have water in their households

Figure 3: Mr Duma's tap in his homestead yard.

The mountain above the homestead provides grazing for livestock of the whole are in summer (October to March)), not just this village, which makes control of movement of livestock and management of the grazing there difficult. There is clear evidence of erosion due to cattle movement, over grazing and injudicious burning.

Figure 4: Left: The large donga separating the two sides of the village. Centre: Erosion due to cattle movement and overgrazing. Right: burning of the mountain for early spring grazing, also leading to erosion.

Most of the homesteads are well fenced, with a small garden and field, as well as kraals and housing for pigs and chickens.

Figure 5: Left: Mr Duma's vegetable garden with peach trees and Centre his fenced field. Right: Mr Khumalo's housing arrangement for his pigs.

Figure 6: Left; Well made roosting boxes for laying hens at Mr Duma's homestead and Right Mr Khumalo's well fenced homestead also indicating wattle cut from local copses, stacked for use as firewood.

Figure 7:Left- two households with descrying or absent fences and little farming activity and Right: 2 households with dongas encroaching on their fencelines. (Mvula Khumalo and Mkhulu Zuma.)

With regard to the wattle copses, the health of the stream flowing through the higher reaches of these copses was in a surprisingly good condition, with some native vegetation also evident and some grass between the trees. (Left picture)/ Further down the valley however these was evidence of soil erosion cause by the wattle thickets 9Rgiht picture). All major branches of the trees have been cut out, leaving them to become bushy, leading to a lack of grass cover and increased erosion.

Baseline information

Individuals from eight of the fourteen households were interviewed to get a snapshot of the general socio-economic and livelihoods conditions in the area. The two small tables below provide a summary of this information

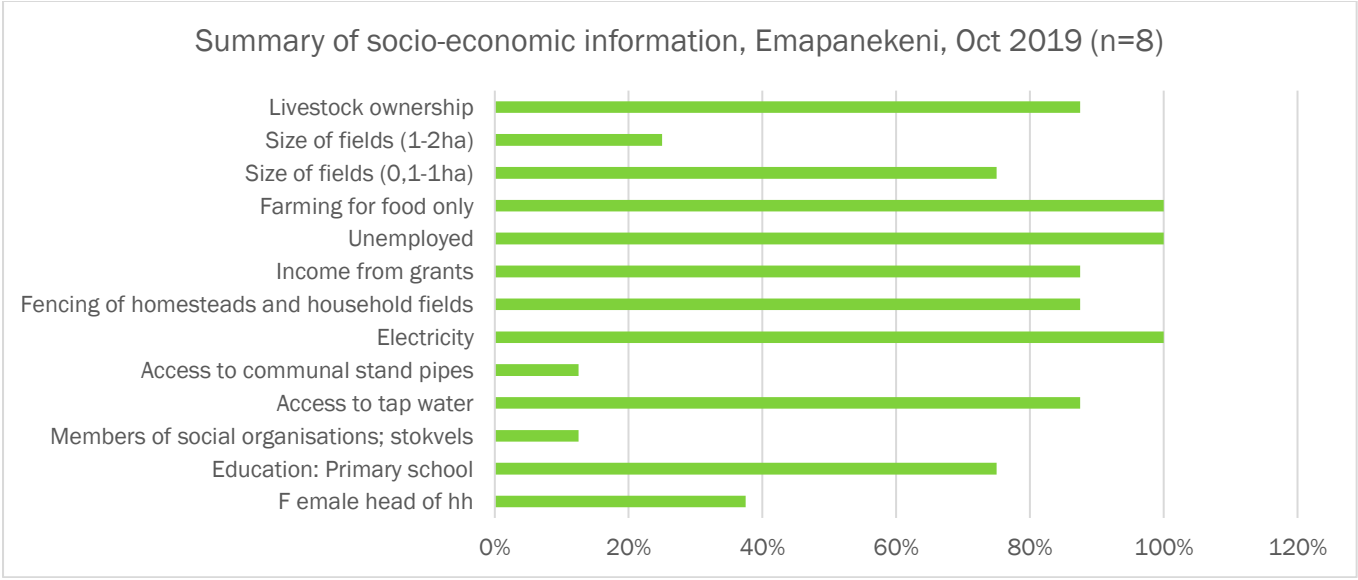

Table 2: Basic socio-economic and livelihoods information for Emapanekeni participants

From this summary it can be seen that none of the participants come from households where members are employed, all rely on social grants and around 38% of the household heads are female. The education levels are low, with around 68% of respondents only having a primary school level education. All households have access to electricity and water and around 86% have well fenced homesteads and household fields. Farming (cropping, gardening and livestock rearing) is for food production only and there is no access to markets. 86% of households own livestock (cattle, goats, horses and pigs). This is a substantial resource, made possible for this village by it's relative seclusion and also access to a substantial area for grazing.

Ave age	51,5
Ave no of household members	4,6
Dependency ratio; average	1,17
Income (in Rands)- unemployed	R 1 457,14

The average household income for these participants is in the region of R1 500/month, shard by between 4-5 household members. The dependency ratio of 1.17 children to each adult is however quite low, when compared to other rural villages in the region. In summary, these households are all extremely poor and vulnerable economically, but are well resourced in terms of water and access to natural resources.

Focus group discussion

A discussion was held around the need for work in the wattle copses and on the dongas threatening homesteads and fields. Thus far the only efforts in this regard have bene through the Community Work Programme (CWP), although not much has been done. It is possible to speak to the councillor Mrs Shangase, to ask for the CWP teams to work in the dongas – although participants did not agree on this approach, as some felt that the councillor wold not support them and others thought that then workers from other villages would be brought in and it would not benefit householders in this village. Also, workers brought in from elsewhere would not be committed to doing a good job.

A discussion around work for incentives rather than payment was held. Ideas included:

- Work in wattle copses and clearing of wattle form stream beds in exchange for poles and fencing materials
- Reducing the encroachment of wattle copses and removing wattle in streams (a more limited option) OR work in dongas threatening homesteads, in exchange for support on Conservation Agriculture (Inputs and training) OR fencing OR supplementation support for livestock

Regarding the Wattle copses and erosion on the mountain, it was noted that the broader community and the traditional Authority would need to be involved. In addition, some of the participants clearly favoured the need to be paid and felt they would want to decide for themselves how to use the monies earned, rather than being given specific materials

It was agreed that Mr Duma would discuss these options with the Induna (Mr Khumalo), to get a final answer. The answer from the TA, was that people should be paid. Sadly also, Mr Khumalo passed away a week later, removing a central person in the local decisions making process.

Regarding Conservation Agriculture, it was agreed that all 14 households want to be part of this process and that their contribution would be to plant an equivalent area to the CA trial plots by themselves as their contribution. The next meeting in this regard was set of **12 November 2019**.

Stoffelton (Ntwasahlobo) process and outcomes

Day 1: Community workshop on farming and resource management (28 October 2019)

Introduction

The Institute for Natural Resources (INR), in partnership with Mahlathini Development Foundation (MDF) and Lima undertook a visit to Ntwasahlobo Village at Stoffetlon for an introductory meeting of the Umgeni Catchment Rehabilitation Project. The meeting was chaired by Ms Zanele Shezi from INR who also co-facilitated with Ms TN Mathebula from MDF. As per standard procedure, the gathering opened with prayer, followed by a welcome from the local Induna, (Mr Mbelu) as well as individual introductions. The purpose of the meeting was to identify challenges related to land degradation and come up possible interventions, together with the community. The project is still at the preliminary stage where interventions will be piloted over a six-month period, with the possibility of being fully implemented across the catchment at a later stage.

Attendance: 42 participants (day 1), 25 participants, 7 new (day 2). Attendance registers attached.

During the introductions, each individual was asked what activities were they currently involved in, and more than 50 percent of the participants said they were not doing anything. Those who were active listed field crop production (maize, beans potatoes) and vegetable farming (mainly cabbages), as their primary activities. There is a local mill. Others also owned livestock; mainly cattle, chickens and goats. Also present at the meeting, were youth members of which 95 percent were unemployed. One youth member, Nomfundo Mbanjwa informed the meeting that she was part of a youth group which wants to venture into farming and requested assistance in this regard.

A few participants were locally employed through the CWP (school gardening) and as primary health care and nutrition advisors in the community, linked to the local clinic.

Discussion on Natural Resources

The discussion on the state of natural resources was somewhat complex, due to issues linked to land ownership. Present at the meeting, were land owners as well as tenants, of which the latter made up the majority. Tenants are allocated a portion of land and pay an annual fee to the land owner. They, however, seemed unclear on issues relating to wattle encroachment and the spread of dongas as they did not perceive these as an immediate threat to them. Tenants normally purchase wattle for firewood and fencing from the owners. Hence, to them it is an asset rather than a threat. If wattle happens to grow in a tenant's field, it benefits them as it becomes a free source of firewood.

There were opposing views regarding how land is managed. Some tenants said they were free to do as they wished and others claimed to be restricted by the land owners, more specifically related to livestock ownership. Tenants have no decision-making powers outside their own areas; thus, do not pay attention to what happens on the larger landscape. One of the concerns they raised was lack of sufficient land to graze their livestock and build houses. As a result, some have built their homes on cropping land.

The land owners are people who either bought land from the chief or reside on family owned land. Mr Moeketsi Molefe is a land owner who lives on a farm previously owned by his great grandparents. He mentioned that he had a serious problem with wattle encroachment which was adversely affecting natural water sources. Wild animals also posed a serious danger to livestock because of the wattle forest.
Wattle: Tenants buy wattle as firewood from the owners. Mostly owners do not mind the wattle copses on their farms as they make an income from that. There is however encroachment of wattle in places that cause problems for landowners. For tenants, if it is one their plots, this is a free resource.
There have been teams clearing wattle in the past, causing erosion, but the wattle just regrows. There is no follow-up.
Water scarcity: Household water provision is managed through the Umgungundlovu District Municipality. Taps often run dry. Water trucks also come from Impendle. Some participants have access to local water sources; springs, streams and small dams, that are shared with livestock.
Reduced grazing is also a challenge as overgrazing has led to the spread of a grass species known as Indlolothi which is less palatable for cattle. These is no livestock management system in place.
Soil erosion and formation of dongas was identified as a major issue, especially in the broader land scape where dongas have formed due to years of soil being washed away. The participants however, said their homestead gardens and fields have fertile soil but they have noticed a reduction in yields due to insufficient rainfall. Water pipes were left bare on the road which caused a lot of water spillage into fields during heavy rains and increased erosion.
Soil Structure: some reported a change in soil colour over time, reduction in soil aggregates and soil compaction.

Summary of issues and changes

- Wattle encroachment leading to shortages of water and reduction in grazing
- Wetlands have dried out; partly due to overgrazing and partly due to commercial plantations of pine, upstream of the wetlands.
- Extension officers work with landowners, not tenants
- Climate change has negatively affected crop production
- Eroded areas are not close to homesteads and erosion and wattle encroachment are not considered an issue by the tenants, who see this as something the landowners need to deal with.
- Moles in fields and other pests pose a significant threat to crop yields
- There is no grazing management in the area and there is not enough grazing. The quality of grazing is low and both landowners and tenants (around 50% of whom own cattle) buy hay in winter if they can afford this. Landowners have access to more grazing than the tenants.

Adaptation Practices

In terms of agricultural production, most participants employ various practices such as:

- Applying liquid manure to improve crop growth in gardens
- Mixed cropping, for the reduction of pests and diseases and
- Crop rotation

The meeting was closed early on Day 1. Household visits were arranged to four participants; Mr Moeketsi Molefe, Nofundo Mbanjwa, Mr Majola and Hilda Molefe. It was also agreed that a separate meeting would need to be arranged with landowners to discuss the broader natural resource management issues (wattle encroachment and soil erosion).

Day 2: Focus group discussion on options

Climate change impacts

Climate change was reported to have a significant impact on farming. Vegetable planting used to take place in August followed by maize and potatoes in October and early November. Unpredictable rainfall patterns have resulted in a shift in planting times, often to later on in the season. Currently, no planting has taken place as it is too dry. They used to have snow once every 3 years but now the period between snow falls is getting wider. Snow is beneficial as the ice takes a long time to melt, thus keeping the soil moist for an extended period which is very good for crops. The last snow fall was in 2017. Snow causes damage if it falls in December as the crops had already germinated and thus get damaged by ice.
In summary, climate change impacts are:

- The area is drier and there is less grazing available for livestock
- Dams and streams have dried up and water shortages are now common
- The reduction in rain. with intermittent heave downpours has caused erosion and compaction of the soil
- The variability in rain has cause significant yield losses

Potential ideas and practices

A few potential options were discussed by the team at the end of Day 1, that could be introduced to the group:

- Conservation Agriculture
- Intensive organic gardening, with soil and water conservation practices at household level (maybe inclusive of small shade cloth tunnels)
- Work on dongas in exchange for farming enterprise inputs and fencing (potentially by the youth cooperative and above to households where dongas are encroaching)
- Fenced gulley gardens that include check dams with planting of Napier or Bana Grass as examples
- Spring protection and
- A youth project providing fencing and growing of fodder for goat production

After the climate change discussion, the facilitation team presented a number of practices for participants to choose from, which included Conservation Agriculture, brush packing, trench-beds, tower gardens, check dams, stone bunds, diversion ditches, gulley gardens and underground water storage tanks. From the list of practices, conservation agriculture (CA) attracted the greatest interest as it encompasses all important aspects of good agricultural practice and focuses on both soil and water conservation. Participants were also very interested in the hand held CA planters introduced.
It was agreed that on the 11th of November, MDF would meet with participants for a spraying and planting workshop and on the 18th, the planting demonstration will be carried out. Participants initially suggested that the clinic garden or the local creche be used as a demonstration site, but upon further explanation from the team it was agreed to work in one of the participants' fields and that both landowners and tenants would attend this learning session. Access to limited resources to conduct the CA experiments would be provided to all interested individuals, for them to implement the farmer level trials in their own fields.

In addition, Nomfundo Mbanjwa will attend with her youth group to discuss a potential option for support in gardening in exchange for their labour on a donga encroaching on their garden. This will be discussed in more detail on either the 11th or 18th depending on attendance from this group.
An opportunity was also provided for Nomfundo Mbanjwa to attend a training in water quality monitoring offered by Ground Truth, on the 6th and 7th of November 2019

Right: Some of the younger participants who joined the meetings, including Nomfundo at the back (top left).

The individual baseline interview will also be conducted on these days.

Removal of Wattle and Donga Rehabilitation

Subsequent to the minor squabbles regarding the control of wattle and donga rehabilitation; it was agreed that a separate meeting would be convened with the land owners. That meeting will provide more insight into what the owners believe are the primary issues, and what interventions are required. It will also provide a platform for them to be involved in the project, since ultimately the conservation of natural resources is everyone's responsibility. At the meeting, one of the land owners suggested that the wattle be used to make logs, firewood and other materials which will be supplied to local service stations. In this way, he as a land owner will create employment for loggers and packers while also earning an income from the wattle. Other suggestions made were using wattle as animal feed, but first applying a chemical to remove the tannins before administering it to livestock. Lastly, it was proposed that training on how to cut and paint the wattle so it doesn't grow back will be provided to local community members as way to empower them to control the wattle themselves. This discussion is still continuing.