Two-day workshop: Sokhulu –Restoration on the floodplains. 21-21 August 2024

1.1 INTRODUCTION

This workshop falls within the following activity sets within the overall programme:

- Activity 3.2.2 b and c: workshop 1- identification of farmers farming along floodplains (Wildtrust restoration team) and
- Activity 5.4.1 b: CCA workshop and identification of challenges and potential adaptive strategies (Mahlathini Development Foundation- MDF)

This activity links with restoration as it is part of riparian zone restoration through the climate adaptation work focused on the estuarine functional zones. The intention is to support alien species plant and solid waste removal and replanting of indigenous natural riparian and littoral vegetation, thus dampening the effects of floods and erosion, improving water quantity and quality for people who rely on this water for drinking, cleaning, and watering crops.

An initial process of identification of farmers in Sokhulu active on the flood plains and the relationship of these activities to homestead based activities as well as wetland and riparian functioning is required to plan the interventions both for restoration and for climate resilient agriculture.

To date, MDF has undertaken a number of site visits and has collaborated with UKZN to undertake the baseline interviews for the Sokhulu community (eight villages). The latter is not yet finalised.

1.2 PURPOSE OF THE WORKSHOP

The purpose of the workshop is multi-pronged and contained the following aspects:

The purpose of the workshop is to:

- Ascertain information on current land-use and farming practices engaged in by Sokhulu subsistence farmers.
- To discuss climate change and how it has affected subsistence farmers in South Africa and Sokhulu, specifically.
- Discuss sustainable and unsustainable farming and land-use practices- linking to the negative environmental impacts of cropping along the floodplain.
- Find out where locals are cropping which will assist in identifying some of the farmers that will participate in the tree-growers activity.
- Find out which indigenous trees are found in the community and what the community members use them for.

To this end, the YES youth volunteers and hub staff invited community members from all eight villages involved in the floodplains to attend the workshop – working through the traditional council and also doing door to door canvassing.

This was followed in the afternoon of day one and morning of day 2 with visits to the different sections of the floodplain. For each of the seven villages, generational access to fields in the floodplain have been provided. The area is extensive (roughly 400 hectares) and in principle

each household from these villages has access to land on the floodplain. Fields/plots are roughly 1500m^2 each, allowing for 2 600 plots on the plain. A number of these plots have been consolidated for a selection of farmers to areas between 1-8ha. It is estimated that between 100-250 farmers are active in these fields.

1.3 WORKSHOP OUTLINE

Item	Description	Material required	Time
Purpose of the day	Introduction of the team and outlining intention of restoration activities and farming support	Vusi -Wildtrust	
Introductions	Attendees to state their name, village and activities in the floodplain incl crops grown	Mazwi-MDF Attendance register	30 minutes
Discussion	*Who is involved in the floodplains? Participants would be asked to sit in their village groups mapping out where activities are in the floodplains and marking those out.*	*Maps, kokis, markers*	*15-20 minutes*
Plenary	Discussion of climate change impacts: Have farmers noticed changed in climate and what have they witnessed as impacts of the mentioned changes	Mazwi – MDF Flip chart, kokis	20 minutes
Past, present, future	Production process-how are people growing their crops, how did they grow them in the past, how are they likely to grow food in the future	Mazwi-MDF Flip chart, kokis, prestick	30 minutes
Presentation	Climate change impacts in the region: drop in the water table, loss of wetlands, flooding, drought, burning, soil destruction in cropping areas, clearing of vegetation	Mazwi,Erna-MDF Data projector, pc with presentation	20 minutes
Possible solutions	Possible solution: less/no ploughing, raised beds, furrows, mulching, organic farming, permanent ridges, Nkovukeni raised beds along channels, less burning	Mazwi- MDf Data projector, pc with presentation	20 minutes
	Discussion: Alien clearing and possible options - linkages with yes Youth… *1> In abandoned plots, with aliens or not, but no longer fertile (either inundated or not plant some useful indigenous plants* *2> Or in areas where invaded with gum – can clear that – around homesteads – wants to remove and plant again… chopped down or clear stumps…* *3> Training in propagation of indigenous multipurpose plants – Yes youth and interested parties, ,,-propagation starter pack… can buy them back….*	*Vusi, Mazwi*	*30 minutes*
Presentation	*Some agroforestry examples*	*Data projector, pc with presentation*	*20 minutes*
Natural vegetation	*What natural vegetation, reeds, trees, bushes in the area that people know are useful*	*Flip chart, kokis, prestick*	*45 minutes*
Plenary	*Suggestions of useful plants that people would be prepared to grown*	*Flip chart, kokis*	*30 minutes*
Closure	*Proposed next steps*	*Flip chart, kokis*	*20 minutes*

Note: Sessions in italics were not covered on the day.

1.4 ATTENDANCE

See attendance register attached:

- MDF: Erna Kruger, Mazwi Dlamini, Nqobile Mbokazi
- Wildtrust: Vusi Mngomezulu, Thembekile Mthimunye
- Sokhulu: 120 participants. Community members from Amalala (top and bottom), Amanzanyama, Hlolinyoka, Ehlanzeni, Ehlawhini and Thongana . Including indunas (Alpheus Masuku-Ehlanzeni and Dumisani Mhlongo - Ehlawini.

Figure 1: A view of the Floodplain restoration meeting held at the tribal court hall in Ehlaweni on 20 August 2024

1.5 WORKSHOP PROCEEDINGS

Introduction to cropping on the floodplains

The team introduced the purpose and stated that the purpose is to talk about agriculture in general and then discuss options of planting with the environment. The purpose is to share information between the team and the community including the impacts of climate change, to have a better understanding of the system, to inform future activities and potential options for improvement.

From a show of hands participants indicated the villages they are from and one person summarized their activities on the flood plain for each village.

Villages represented were: Amanzanyama, Thongonya, Amalala (top and bottom) Holinyoka, Ehlaweni, Holinyoka and Ehlanzeni.

Summary for all villages: Many of the fields are waterlogged across the whole flood plain, but more so in Ehlaweni and Ehlanzeni, and we have lost crops as well as banana orchards because of this. Farmers are now planting in smaller plots more uphill, but most of the farmers here are not cropping now. There are determined farmers who are still trying. However, productivity has declined. Sweet potatoes now are small and also rot in the fields. In the last year or so the area has dried out a bit and farmers have now prepared lands. We are just waiting for rain, but when it comes it causes waterlogging, which didn't happen in the past. Basically, it is either too dry to crop properly or too wet...We are requesting that you will come see where we are planting to see these problems.

Some farmers here have been making a good living from farming. One example is Mr Zulu, who has been farming for many years and has made a good living including being able to buy cattle and tractors. We used to be able to sell our crops (mainly sweet potatoes and amadumbe) as far as Durban – through a system of bakkie traders. Sale of sugarcane, beans and maize is undertaken more locally, with good markets. These options still exist but is now much reduced. Now we can no longer farm and must look for work. There is the problem with RBM who closed the mouth and now that water is contaminating the fields. *Note: It was a common perception in the workshop that Richards Bay Minerals closed the mouth of the Msunduzi river on purpose and that the water in the flood plain is contaminated with poisons from the mining operations that are killing their crops and are also dangerous to humans*. We want to farm for food and income and want a solution to take water out from the fields.

Who has access

A discussion followed on where the fields are and who has access. Participants confirmed that all the villages have access to fields in the floodplain and that historically all families were provided fields. These fields were provided to their great-great grandfathers and have been passed down in the families since then.

Women also have access to these fields through their families and often work together with their husbands in the fields. Women also have access to lands for themselves, usually working in groups. These aren't necessarily on the floodplains but are areas in and around the villages. Distance to these areas can be a problem. They also mentioned that they would like assistance as crops and trees, notably bananas, which used to grow in the past are no longer doing well and they need assistance with what to grow. Another woman mentioned that the meetings are always here in Ehlanzeni and some of them always have to come from far to attend. They want people also to go to them. In Holinyoka they have a community garden for women, but it is now being invaded by livestock as the fencing is no longer good. They want assistance with that. from a place that is far, had to commute to this workshop.

In the past if someone came to live, they would go through the chief and would be provided with a field. There is no longer land to give now, but people can talk to friends and relatives to give parts of their allocations. There are waterlogging issues across all the fields in the floodplain. Usually, water will flow out and back in but because the mouth is closed, the chemicals have built up and are messing up the land.

Climate change impacts

Mazwi introduced this discussion mentioning that the climate is changing along with deterioration of soils (lack of fertility, erosion, disease issues), in part due to practices undertaken by farmers and that there is a need to explore options for improvement.

With respect to climate change the Induna said that 'Times have changed, back in the days summer used to be summer, and winter would be winter but now we really don't understand what is actually happening. Rains are scares and temperatures are high and dominating the land'. One woman added that 'We no longer harvest, we now have frost which destroyed most of the produce, and we never had frost in this village or community in the past'. Another man added that 'We don't notice much in terms of climate change(temperature is not that high) and I think it is because we are closer to the ocean. Most participants were clear that they cannot differentiate the impacts of climate change from the larger problems in the area due to closing of the mouth and the gum plantations.

A short discussion on water access followed, summarized in the points below. Different individuals had differing opinions:

- We have a lot of water in this community, natural water which we do not need and water which drink, we just need help with water in the fields. The request is for irrigation, to draw water from lower lying areas to those higher up. When soils are dry, they are incredibly hard and need to be irrigated before planting can be done.
- We have issue with water access, we are tired with water from the water truck which are delivered to us to consume, we need boreholes. Please help us with boreholes
- There are some boreholes in the villages, both for individuals and those for the village to use, but some are drying up and some are very far from households.
- Back in the days when were we still kids, we used to receive rain every weekend, but that is no longer happening. We also had a river which we used to drink from, but now it has turned green (Algae) so we no longer drink from it.

A presentation (with assistance from SAEON) outlining the weather and water related issues in the area was given by Erna and Mazwi. Some of the main impacts are the reduction of the water table due to the extensive gum plantations in the area (both smallholder and commercial) linked to climate change. As a consequence, the water levels in the lakes are also going down rapidly and it is this water that is being used to supply water to communities. So along with the inundation of the flood plain the other issue is rapid drying of the environment more generally. Mazwi mentioned that alien clearing and also removing some of the unwanted gum trees could have a large positive impact on the water situation. Some of this clearing is to be undertaken through the Yest youth employed under the Wildtrust, but communities also need to get involved.

At this point in the workshop participants started to refuse to continue, despite an attempt by some individuals to allow the facilitating team to continue.

They stated many issues and problems that are not being considered by the various groups of people coming to address them and that they do not want to talk generally about things. They said that they want people to assist them first before more research is done, as there has been a lot of research that hasn't benefited them. They also said that both Wildtrust and MDF are scarce, coming to have workshops and discussions and then going away again for a long time. They also said that there are many farmers who aren't at this meeting which can cause conflict at village level as they will want to know why they weren't invited. Erna suggested that MDF and Wildtrust can also have meetings in each of the villages with farmers. And can differentiate between the farming/gardening happening at households or in communal gardens and the fields. The response to this suggestion was positive.

If this team will not help them, then they do not want to participate in the discussion. Further issues outside of the flooding, water logging and 'poisoning' of the fields raised were lack of water in the villages and homesteads, linked to a demand for boreholes to be drilled (Ehlanzeni). Another issue that came up was compensation for inundated fields. A few farmers were compensated, but others are still waiting for redress. Mostly the demand is to open the Msunduze mouth and dredge the channels to provide access again to fields that have been lost. Despite Erna's report that this process is in fact underway via DFFE and Isimangaliso, the participants were still unwilling to continue. They wanted the team to go and look at the fields.

Arranging field visits on the floodplain.

The Indunas in the room stated that they were having a meeting the following day, but gave their permission to continue. It was agreed to start at the top (closest to the mouth) – Ehlaweni and then move down to the areas representing the other villages, Holinyoka, Amanzanyama and if there is time also to Amalala. The meeting agreed that representatives from each village go along for the field visit and names and numbers of people from each village were recorded.

There are fields are closer to Ehlanzeni and Ehlaweni. A few farmers can easily meet the facilitating team there. Some of the other villages are far from the plains. There was some concern that the area is very large and that some of the villages would be left out. Participants wanted the facilitating team to take the time to visit all the areas and as many fields as possible. It was arrange to go to Ehlawini (pm on Monday 20th) , to start in Ehlanzeni (am on Tuesday 21st) and to continue 'down' from there to Ethukwini, Amanzanyama and Amalala.

The induna closed the meeting thanking the team for calling the workshop and listening to the community's issues. He reiterated his wish for the team to visit the fields to see the issues there.

1.6 FIELD VISITS

Ehlaweni

The small group of three farmers started by showing the team a small traditional field, called the Nkosazane field, next to which the area has been inundated. Mangroves are thriving in this small site. They also pointed to other small low-lying areas where community members used to plant which has now reverted back to native vegetation. The mouth closure was around 10 years ago. They mentioned that the water levels are very low now as it is winter. By January, after the rains water will be 1-1,5m higher. Their impression was that the mangroves died either due to saltwater coming in from the mouth or herbicides and pesticides washing down into the river. Algae in the water could also be reducing oxygen levels for the trees. Cattle graze freely in this area. There are a lot of small gum plantations as it was profitable for a period to be contracted to SAPPI and grow these trees.

They showed areas where reeds have returned, and although these are used for thatching and house construction, they are not a good replacement for commercial crops. The reeds are generally left in patches to 'soak' up some of the standing water and reduce water logging in neighbouring fields. Fields and lands belong to individuals, so it would be difficult to get agreement form all to manage the larger area and keep some areas for regrowth of natural vegetation. Farmers didn't think that reeds add to soil fertility and felt that burning is required

They believe that opening the mouth would assist to revert the system to what is was before. They have seen the white farmers across the river dredging small channels to ensure water flow- but the smallholders cannot afford to do this. They did however admit that the area is drying out somewhat and that a number of fields have now been opened up. These fields are quite fertile due to resting for a long period. Farmers do not use any fertilizers or manure on their fields, only in the smaller patches where vegetables are grown. The only chemical used often is Kemprin for pest control. Generally, all farmers in the area do a rotation of sweet potatoes – beans – maize. This tradition is strong and very few farmers grow other crops, besides amadumbe and sugar cane. One farmer however is using no-till ,as it has been introduced in the past. He uses herbicides (roundup, springbok and paraquat) to manage weeds in his no-till fields. Most farmers plough and as the system allows continuous cropping, they plough up to three times per annum. Field sized are around 1500$m^{2.}$.

Figure 2: Ehlaweni, small area reverted to bog/wetland, which used to be a field before, Some evidence of reeds and natural vegetation returning

Figure 3: Ehlaweni: The Nkosazane field on the left. On the right are mangroves in water, but with a lot of algae. This field was flooded for a period but has been in use again for the last few years.

Figure 4: A view of fields in Ehlaweni, with home- made fences shown. In the middle of the picture in front of the garden and between the gardens and the gum plantations are areas that have been inundated for the past 10 years that have reverted to wetland, which the farmers hope to reclaim for cropping by having the Msunduzi mouth opened.

Figure 5: Smaller gardens close to the reeds are common in this area, showing sweet potatoes and beans.

Ehlanzeni, Ethukwini and Amanzanyama

These areas were visited on the morning of the 21st September. We visited fields for Mr Zulu and Mr Thembinkosi Dube, among others. The area has extensive cropping fields and also extensive areas inundated closer to the Msunduzi river. Farmers have consolidated plots and have larger fields (between 1-8ha). A few of these farmers have lost up to 4hectares of their allocation.

The fields were flooded in 2015. Recently the water has subsided, allowing farmers close ot his edge to reclaim some of their fields. As with Ehlaweni. The five main crops planted are sugar cane, sweet potatoes, amadumbe, beans and maize, with small patches of vegetables. The latter are irrigated by hand from water nearby, as there are small channels and streams throughout the area. In summer the whole area can become flooded and there is a lot more waterlogging. Farmers use fertilizers at planting and also LAN for top dressing. Herbicides and pesticides are used when they can afford them – which is not often. They also weed manually. They work with contractors and bakkie traders who come to fetch their harvests from the fields.

They were concerned about the quality of the water in the channels as it is reddish brown and is covered by an oily looking film. Farmers believe that this is due to poisons, from the RBM mining in the soil leaking into the water.

There were many theories discussed as to the complicity of RBM mining, if which most were somewhat unrealistic, despite being quite heated. Mr Dube however is an elder in the community who used to work for the Natal Provincial Administration before 1994 and was responsible for dredging of the channels and building and maintaining roads in the area. He is willing to assist in outlining how this all happened, and to speak to farmers about the hydrology of the area as he was one of the few people who was aware that the mouth closure is a natural process. He specifically mentioned that he is unwilling to participate in the larger more politicized meetings. He also mentioned that he has been in contact with iSimangaliso and that he discussed with them that he could put a team together to do the dredging for a lot cheaper than the roughly R30million which is being suggested. He wanted to work with the Wildtrust/MDF team to continue with planning the channels, dredging and maintenance in the

fields as opening the mouth in and of itself will not have the desired impact of managing water on the floodplain that the other farmers are expecting.

Figure 6:Left: A view of sugarcane fields, bordered with bananas, typical in the floodplain and Right: Sugarcane being harvested and loaded by the contractor.

Figure 7: Left: A plot of amadumbe planted closer to the reeds, which indicate the inundated area. Right: These fields are expanded bit by bit as the water has slowly been subsiding. The farmers pointing out the edge of the reeds. Here they were hoping to be provided with pumping and piping to pump water from this area to the higher lying areas.

Figure 8: A typical ploughed field and a close up of the soil, which when dry is incredibly hard

Figure 9: Left: A view of the reddish-brown water with film on top, common in the small channels in the area and Right: A patch of wetland reeds – these are generally quite small but dotted throughout the landscape.

Figure 10: An example of a maize plot in the area. Growth is surprisingly good for the quality of the soil. In addition this maize was planted during winter, which provides a definite market advantage, as this isn't possible anywhere else in South Africa.

Closing remarks and way forward

Farmers have asked for irrigation options, fencing and dredging of the Msunduzi mouth. They are open to trying out new ideas and crops, such as mulching, conservation agriculture, fodder crops and possibly rice, but warned that people on these plains have been doing the same thing for a long time and would be reluctant to change.

They do not particularly like the idea of consciously cultivating and leaving patches of wetland in this area, and given the larger land holdings of some of the farmers, will also want to continue ploughing. There isn't a strong understanding among the farmers of the importance of the channels and wetlands in managing the water in the area. For them the channels are there only to lead water away from their fields.

The soils are typical of wetland soils that have been cultivated too much – heavy and structureless, leading to incredible hardness when dry, plough pans and a tendency towards water logging when wet. These farmers have a system of managing these characteristics to still produce reasonable crops, but in the long term this is very destructive for the soils themselves. The system is complex with the water table rising and falling by about 2 metres across seasons, a situation that opening of the river mouth will alleviate to an extent, but not totally remove.

Next steps include:

- Taking some soil and water samples across the flood plain to ascertain the fertility and quality of the water
- Comparison of condition on the floodplain in winter and summer, as well as further discussions with key informants about channels, patches of natural vegetation, flood control and scenarios for management. This will need input from agricultural engineers and hydrologists, as well as some form of mapping.
- Working with village-based groups of farmers to explore adaptive measures and climate resilient agriculture practices and to set up a process of experimentation with different options and ideas to improve the management of water and soil on the floodplain as well as at the homesteads or the smaller communal gardens.
- Continuation of liaison between MDF and the Wildtrust restoration team to allow for village-based clearing of unwanted gum plantations and recovering these areas as productive land, through agroforestry systems.