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# Feasibility Study for the Utilization of Solar Energy for Sugarcane Irrigation Pumping by Emerging Commercial Small Cane Growers in Eswatini

## Report on Irrigation Seminars (Information session)

### Deliverable D1.2

Prepared by: MicroEnergy International

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## List of Abbreviations

<b>Abbreviation</b>	<b>Definition</b>
CTCN	UN Climate Technology Centre and Network
ECGA	Eswatini Cane Growers Association
ESA	Eswatini Sugar Association
LUSIP	Lower Usuthu Smallholder Irrigation Project
KDDP	Komati Downstream Development Project
MEI	MicroEnergy International



## 1. Introduction

- On September 12th, 13th, and 14<sup>th</sup>, the Eswatini Sugar Association (ESA) conducted a series of irrigation seminars with sugarcane farmers in different regions of Eswatini. MicroEnergy International (MEI), through its local experts, participated in these events in order to: i) conduct awareness raising on the UN Climate Technology Centre and Network (CTCN) project and the benefits of solar powered irrigation systems; and ii) conduct a series of focus group discussions with farmers to gather their insights on the challenges they currently face and their views on solar irrigation systems as an opportunity to reduce costs.
- MEI's presentation aimed to raise awareness on solar irrigation systems and empower small cane growers in Eswatini on the benefits and feasibility of utilizing solar energy for their irrigation pumping needs. Additionally, the seminar facilitated discussions among the participants, enabling them to exchange ideas and explore collaboration opportunities to implement solar energy solutions in their farming practices.
- Three irrigation seminars took place, located in the following areas:
  - Lower Usuthu Smallholder Irrigation Project (LUSIP) – South, Phumlamcashi
  - Komati Downstream Development Project (KDDP) – North, IMS hall
  - The Malkerns
- Originally, the information session was aimed as a process that would lead to the identification of interested farmers to be shortlisted for the technical and economic feasibility assessment of the introduction of solar power irrigation systems. However, due to the logistical challenge of mobilizing the farmers and in order to reduce the pool of candidates to a manageable number, it was decided to:
  - Conduct the information sessions in collaboration with the ESA during the irrigation seminars, as this event facilitate the mobilization of farmers to specific locations, facilitating interaction.
  - Obtain the list of interested farmers in collaboration with the ESA and ECGA, and shortlist based on the pool of candidates recommended by ESA. This report presents the list of attendance to the irrigation seminars, while reports D1.3 and D1.4 of this project present the list of candidates obtained in cooperation with ESA and ECGA.

## 2. Attendance to the irrigation seminars

- The seminars in Siphofaneni (LUSIP), Malkerns, and Mhlume (KDDP) focused on specific challenges and opportunities related to solar energy adoption in each region. 149 growers, representing both local and large-scale associations, attended the event. There were 21% female participants and 79% male attendees. In general, the seminar offered a forum for producers to share information and concepts, resulting in a more efficient and sustainable use of solar energy in agriculture.

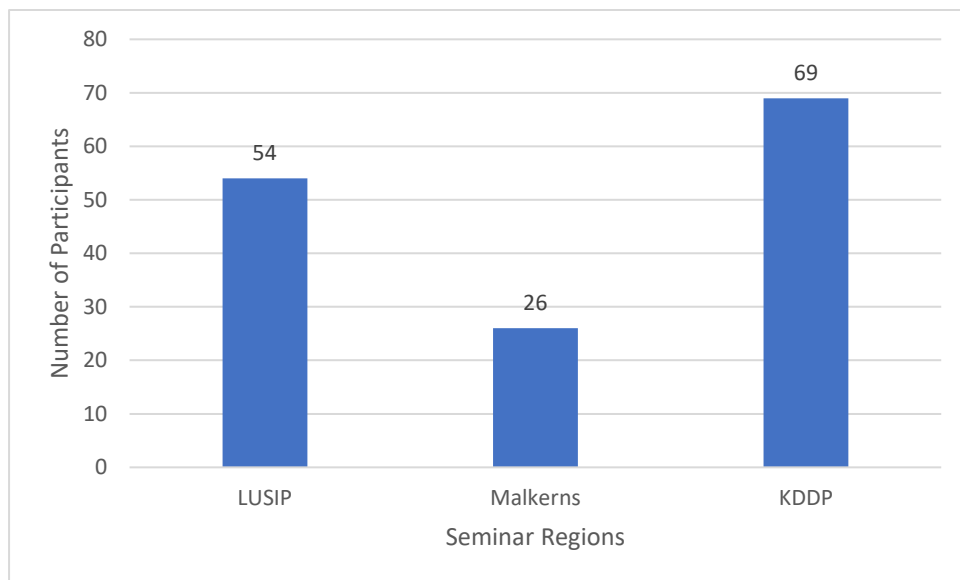


Figure 1 – Number of Participants in each Region

### 2.1. LUSIP region

- The south, in those farms located around the Lower Usuthu Smallholder Irrigation Project (LUSIP) and whose production is delivered to the Big Bend mill for processing. The seminar was held on September 12 and was attended by 54 growers. In it, 24% were women, and 76% of the growers were men. The participation of both male and female growers in the program aimed to ensure a diverse range of perspectives.

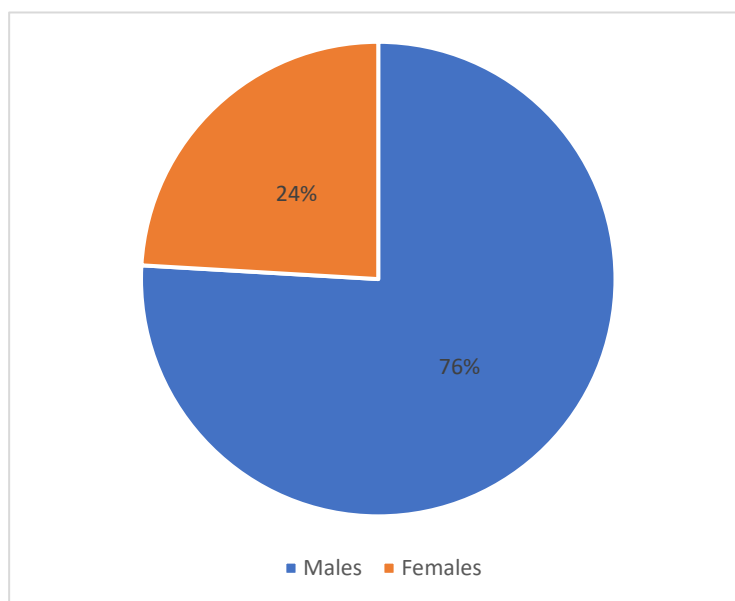


Figure 2. Gender assessment of participants in LUSIP Irrigation Seminar



Figure 3. Irrigation seminar in LUSIP region

Table 1. Attendance list of participants in the LUSIP seminar

Name	Farm/Organization	Gender
1. Maziya Ntombi	Maplotini	F
2. Maseko Wandile	Maplotini	M
3. Gumede Thulasizwe	Maplotini	M
4. Msibi Nompumelelo	Matimavu	F
5. Mayenziwe Dlamini	Asibambane	
6. Vuma Maseko	Ntokozweni	M
7. Wandile Sihlongonyane	Ntibane	M
8. Nonhlanhla Mtshali	Tikane	F
9. Angel Zungu		F
10. Ngcamphalala Simanga	Tikane	M
11. Ndlela Philile	Manganese	F
12. Dube Lindokuhle	Qwabe Invest	F
13. Wen Jason	Sikhutsele Invest	M
14. Scelo Vilane	Ntubane	M
15. Skhumbuzo Dlamini	Khwanyani	M
16. Nkosingiphile Shiba	Gangakhulu	F
17. Thabile Matsenjwa	Sigwanakatane	F
18. Lucky Bhisha	ESA	M
19. Sifiso Magagula	Crookes Plantations	M
20. Sizwe Makhanya	Vulemtfuba LTD	M
21. Phetsile Fakudze	Ngilongo	F
22. Thusi Sifiso	Kusetandleni	M
23. Samuel Ngcamphalala	Sigwanakatane	M
24. Thulani Dlamini	Mgonyameni	M
25. Dlamini Slungile	Malabane	F
26. Nikiwe Manana	Sikhutsele	F
27. Mduduzi Ngcamphalala	Malabane	M
28. Pshesheya Tsela	MEI	M
29. Sipho Malindza	Sukumani bomake	M
30. Sifiso Mhaliphi	Ligidzamuva	M
31. Celumusa Shongwe	Kwenteka akufani	M
32. Mpendulo Mamba	Vuka sive saMaja	M
33. Dlamini Nkosinathi	Mbabaca management	M
34. Nonhlanhla Tsabedze	Mhlakazo Invest	F
35. Samuel Zwane	Mthomanzi	M
36. Fanele Ngcamphalala	Mpodweni	M
37. Vincent Khanya	Imbali yamathengi	M
38. Celumusa Ngcamphalala	Sifiso semalunga	M



Name	Farm/Organization	Gender
39. Tenson Magagula	Ntokozweni	M
40. Samuel Matsenjwa	Sesibinile	M
41. Albert Ngcamphalala	Mbazamo	M
42. Simelane Wandile	M & S Investment	M
43. Samkelo Dlamini	Makwenze	M
44. Sibusiso Simelane	Mabhudlweni	M
45. Sifiso Matse	Qwabe investment	M
46. Setsabile Dlamini	Kuhle kubonela	F
47. Banele Mhlanga	ESA	M
48. Ephraim Dlamini	ESA	M
49. Zwelakhe Mtsetfwa	ESA	M
50. Mangaliso Mnisi	JMBV	M
51. Sifiso Ngozo	Nconconco PTY Ltd	M
52. Ntokozo Simelane	Mthomanzi	M
53. Vusie Gamedze	Matsenjwa	M
54. tsabedze	Bukakwakho	

## 2.2. The Malkerns

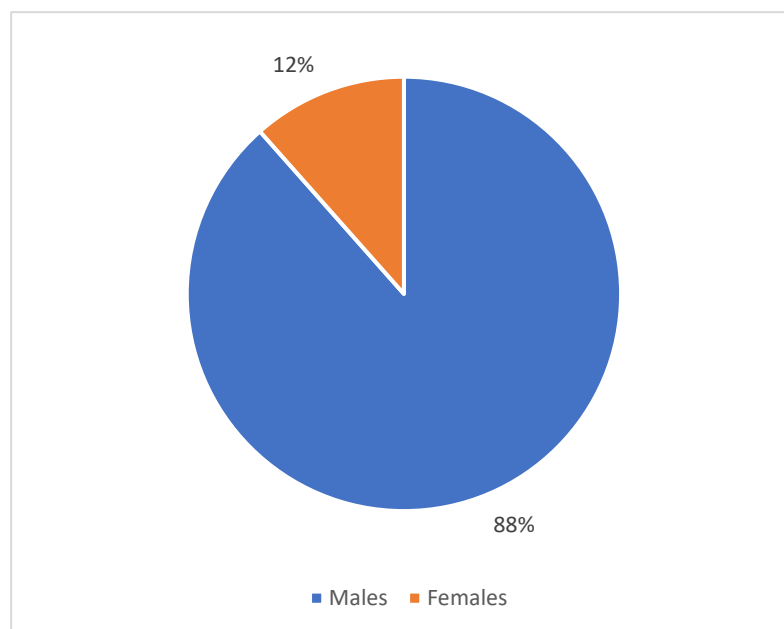


Figure 4. Gender assessment of participants in the Malkerns Irrigation Seminar

- The Malkerns, located in the Central region, is another area where the promotion of solar irrigation in agriculture is being emphasized. The seminar held on September 13th in Malkerns saw the participation of 26 growers, with 12% being women and 88% being men. This balanced representation allowed for a comprehensive discussion of the benefits and challenges of integrating solar energy into agricultural practices in Malkerns.



Figure 5. Irrigation seminar in the Malkerns region

Table 2. Attendance list of participants in the Malkerns irrigation seminar

Name	Farm/Organization	Gender
1. Edward Mkhonta	Farmer/Mbetseni F.C	M
2. Magagula Wonder	Supervisor/Umbane	M
3. Tfwala Malungisa	Supervisor/Etibusisweni	M
4. Siphila Matsenjwa	Farm Manager/Emerald Hill	M
5. Stephen Nxumalo	Pump attendant/	M
6. Nhlanhla	Pump attendant/	M
7. Ntokozo Maziya		M
8. Zwakele Mtsetfwa	ESA Irrigation Trainee	M
9. Banele Mhlanga	ESA	M
10. Ephraem Dlamini	ESA	M
11. Dr. N. Dlamini	ESA Irrigation Engineer	M
12. Mr. Mkhaliphi	ESA Irrigation Officer	M
13. Siyaya Mzwakhe	Irrigator	M
14. Robert Mamba		M
15. Mfanfikile Lulane		M
16. David Dlamini	Supervisor	M
17. Khanyisile Dlamini	Supervisor	F
18. Mathew Mabuza	Chairperson	M
19. Vusi Dlamini	Farmer	M
20. Sihamuha Mnisi	Hlekamanzi	M
21. Sibane Mnisi	Hlekamanzi	M
22. Veronica Dlamini	Umbane	F
23. Sabelo Mngometulu	Umbane	M
24. Pshesheya Tsela	Consultant	M
25. Lungile Mabundza	Consultant	F
26. Justice Mabuza	Extension Officer	M

### 2.3. Mhlume (KDDP region)

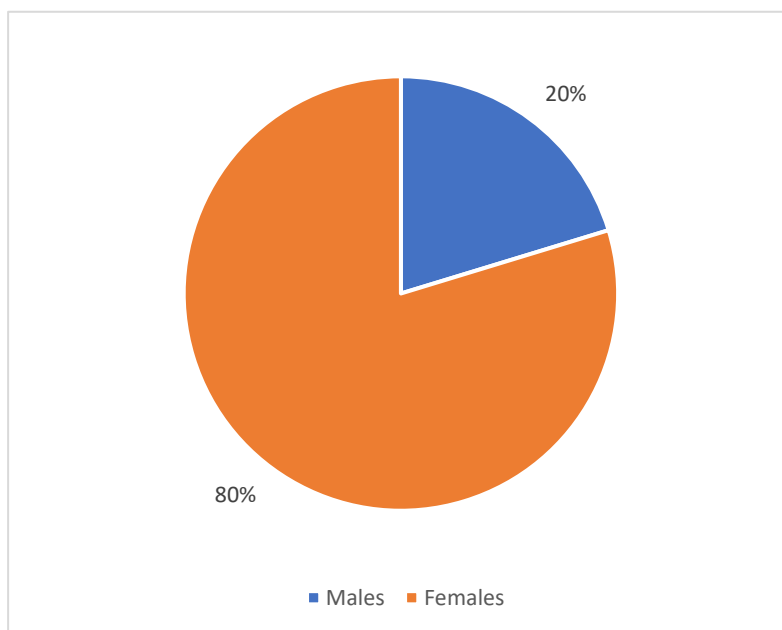


Figure 6. Gender assessment of the participants in the KDDP irrigation seminar

- In the neighboring region of Mhlume, the Mhlume mill plays a crucial role in supporting the local farmers. A recent session conducted on September 14th saw a total of 69 growers participating, with a slightly more balanced gender representation. While 80% of the growers were men, women accounted for 20% of the attendees, highlighting the program's commitment.



Figure 7. Irrigation seminar in the KDDP region

Table 3. Attendance list of participants in the KDDP region

Name	Farm/Organization	Gender
1. Nkululeko Dlamini	Supervisor/ mavela/lilanda	M
2. Mfan'khona Nxumalo	Mavela	M
3. Bonnyface Dlamini	Disinfect/Farm 84	M
4. ? Magagula	V.att./ilanda	
5. Sandile Maziya	Supervisor/Ndinda	M
6. Raymond Simelane	Farm manager/ Kusile	M
7. Nkosinathi Magagula	Ntamakuphila	M
8. Edson Gwebu	Supervisor/Vukutimele	M
9. Nhlabatsi Sincdzile	Hlabane	F
10. Shongwe Menzi	Supervisor	M
11. Dlamini Johane	65 Vuvulane	M
12. Colani Magagula	Phakama	M



Name	Farm/Organization	Gender
13. Nyoni Bongani	Phakama Mafucula	M
14. Sonnyboy Mamba	Farm manager/ ingcayizivela	M
15. Bonsile Dlamini	Farm manager/Farm 154 Vuvulane	F
16. Jabu Mkhulisi	Vuvulane	F
17. Sikhumbuzo Nxumalo	Driver	M
18. Alpheous Mavimbela	Supervisor/F233	M
19. Sandziso Nxumalo	induna	F
20. Mbalenhle Tembe	Supervisor/ Mbombo	F
21. Sengwayo Mzomuhle	Induna/Mbombo	M
22. Lungile Mabundza	MEI	F
23. Xolile Magagula	Supervisor	F
24. Gugu Nxumalo	Member	F
25. Phesheya Tsela	MEI	M
26. Austin Mahlalela	Supervisor	M
27. Noran Khumalo	Vuvulane /64	
28. Thomas Tsabedze	Farm 206/ vuvulane wetfu	M
29. Phineas Lukhele	Singeni	M
30. Phineas Nkonyane	Supervisor	M
31. Enock Dlamini	Farmer /vuvulane	M
32. Thembinkosi Nxumalo	Indvuna/singobonjalo	M
33. Mziwakhe Nxumalo	Pump attendant/ sinqobonjalo	M
34. Levis Magagula	Vice chair/sincobanjalo	M
35. Jeremiah Dlamini	Supervisor/	M
36. Zwelakhe Mtsetfwa	ESA Irrigation trainee	M
37. Ephraem Dlamini	ESA	M
38. Siphopho Sithole	Farm Manager/Vuka sidwashi	M
39. Nkosiyabonga Mvila	Indvuna/vuka sidwvashi	M
40. Jeffrey Magagula	Indvuna/ubombo	M
41. Ncamiso Mabuza	Supervisor / kusile farm	M
42. Amos Lukhele	V-Chair/Mangweni	M
43. Siphesihle Dlamini	Supervisor /Mangweni	F
44. Manqoba Shongwe	V-chair/Ndinda	M
45. Thulani Simelane	Supervisor/Makhubeni	M
46. Alfred Zwane	Supervisor/Madlangempisi	M
47. Lindiwe Ndzima	Vuvulane	F
48. Nonhlanhla Nobela	Vuvulane	F
49. Simelane Themba	RES	M
50. Bongani Gulwako	2919 RES	M
51. Vusi Ngcamphalala	Supervisor/ sivukile	M
52. Siphoh Kunene	Supervisor/ Buhle Besive	M
53. Nomile Magagula	Trainee /Sivukile	F
54. Sibonginkosi Dladla	Vuvulane	F
55. Senzangaye? Msibi	Hhohho	M
56. Godfrey Nhlapho	Vuvulane	M
57. Obed Shiba	Vuvulane F6	M
58. Sifiso Tembe	Bambanani	M
59. John Mhlongo		M
60. Siphoh Mabila	Farm 196	M
61. Temcebo Dlamini	Farm 191	F
62. Phila Kunene	Mnyangombili	M
63. Mthetho Dlamini	Ext. Officer	M
64. Mavelelmpini Dlamini	Vuvulane	M
65. Machawe Dlamini	ESM	M



Name	Farm/Organization	Gender
66. Dumsani Sibandze	Farmer	M
67. Douglas Gamedze	Extension	M
68. Banele Mhlanga	ESA	M
69. Celumusa Zondo	E. O	M



### 3. Insights of focus group discussions conducted at the seminars

- Smallholder farmers in the LUSIP region report having experienced water scarcity and an unreliable electricity supply, along with increasing electricity costs.
- The smallholder farmers are concerned about not having the financial capacity to adopt new and efficient technologies.
- Farmers who depend on the river for irrigation are severely impacted by it due to the lengthening of the drought period. Furthermore, other problems faced were as floods and wildfires.
- It was recommended to install meters for water flow in order to have a better comprehension of farm's irrigation procedures, particularly for understanding the water volume needed for one irrigation cycle.
- Lack of knowledge of proper irrigation practices has been identified as a problem which has caused problems such as uniform irrigation and improper scheduling of irrigation practices.
- The farmers in the Mhlume region reported facing problems such as water rationing and an irregular water supply from the Maguga dam.
- Some farmers expressed their interest in a centralized solar solution "Is it possible for this project to have solar installed at the Maguga dam or somewhere along the pumps so that all farmers receive their share of water required for irrigation? Maybe it can reduce the costs of pumping and maybe lessen the water stress we are experiencing."
- Farmers reported experiencing a high water rationing in the Vuvulane region: " People are stealing water.... there is sabotage, especially for the ones who are at the end of the water chain...their crop suffers because the water pressure doesn't get to all the crops...it's a real challenge which needs addressing"
- Some farmers expressed concerns respect to the introduction of solar irrigation due to the feedback from farmers which have already installed such systems. **"Farmers are challenged because the people who install the solar systems are already aligned with certain financial institutions- this means that there are financial institutions from which it is hard to finish their loans"**
- Some of the farmers expressed the need for assistance from the government to support the acquisition of solar irrigation systems, as they see affordability as a challenge. Furthermore, some farmers were interested in the use of a centralized solution **"If we can have a big solar 'station' which is big enough to send power to a lot of farms that would be amazing".**
- Farmers reported concerns regarding the possibility of feeding-in of power back to the national grid. Some of the questions raised by the farmers stem from whether they have a choice or not and what is possible, especially if they do not want to feed the power into the national grid.
- Additional concerns regarding the acquisition of solar systems were raised in terms of a potential **"lack of transparency in the installation process"**. Additionally, farmers report a **"limited access to financial support"** which will difficult to afford and install solar irrigation systems.



## Annex – Guidelines for focus group discussions

The following section depicts the statements collected during the focus group discussions and reflects the views of the interviewed farmers on the following topics:

### 1- What are the main challenges that you face as sugarcane farmers?

- “There are high costs of sugarcane production and processing- from the farm to the mill costs are increasing exponentially and it is hard for smallholder farmers to keep up with all these prices.”[FDG, Siphofaneni]
- “High debt burden on the farmers...when is the farmer going to enjoy their returns? It is taking longer to service the loans and keep up with the interest rates and also keep up with the increase in the prices of electricity. The cost of doing sugarcane business increases every time and the farmers do not get a break” [FDG, Siphofaneni].
- “At times there is an internal struggle between millers and smallholder farmers- debt accumulation and major losses that the farmer experiences due to disease and pests; loads loss through road accidents etc] but they still have to pay. There is a need to have some insurance policy or something to be put in place so that it takes care of such incidents so that the farmer doesn’t lose out” [FDG, Siphofaneni].
- “The labour costs and transportation costs are rising [fuel prices have skewed everything and small-scale farmers are paying the price- “the terrain to get to the farms can be so bad that it is almost impossible for the trucks to leave the farm...that results in the soil becoming more compact...there is need for infrastructure/terrain to be improved between and around the farms”[FDG]
- “Since 2014 the power tariffs have been on the rise and pumping for irrigation is one of the most significant costs that smallholder farmers have to deal with...”[FDG, Mhlume]
- as smallholder farmers we are caught between the rock and a hard place- increases in energy prices means farm inputs are also increased. But the farmer has limited say on the outputs of their cane- as a result the profitability and spending power of farmers is determined by so many external factors”[FDG, Mhlume]
- “Increasing electricity hence costs appear to be an on-going phenomenon. An effort to reduce the burden of grid electricity costs is therefore likely to be beneficial for smallholder cane growers, including ensuring that usage is charged under the correct cost. However, smallholder farmers do not have the financial muscle to adopt new and efficient technologies..”[FDG, Siphofaneni]
- “..the increase in electricity makes it harder for farmers to make profits...electricity costs are like trying to fill a big hole or feeding something that never gets full” [FDG, Siphofaneni]

### 2. Do you face any challenges associated to climate change?

- “...our area has experienced unpredictable weather conditions and there is an amplified competition for limited water resources in our area..” [FDG, Siphofaneni]
- “Some of us are still using the old irrigation systems that extract directly from the local rivers. As such, in periods of drought the water flow is very low which means we have to struggle to ensure that our crop do not suffer from excessive water stress by laying sand bags in the river to guide the water to the suction pumps..[FDG, Siphofaneni]
- “we are still not connected to the Lubovane dam and so the water pressure from the river fluctuates resulting in water stress on the cane. Our can grows unevenly because of the water pressure...”[FDG, Siphofaneni]
- Sugarcane requires substantial water and any shortages sabotage the chances of good yields for cane growers. “The farmers who depend on the Maguga dam [those in Vuvulane] voiced the challenges of not being able to receive their water on time [on some days]- which is a let



down especially when the cane requires a substantial amount of water for healthy growth..” [FDG, Mhlume]

- “people are stealing water....there is sabotage especially for the ones who are at the end of the water chain...their crop suffers because the water pressure doesn’t get to all the crops...it’s a real challenge which needs addressing” [FDG, Mhlume].
- “..farmers need to be up-to-date with the current changes in the weather patterns...farmers also need to make use of their extension officers in order to know which seed cane are more resistant and so that they can also source them from certified retailers..”[FDG, Mhlume]
- “Shortage of land as a result of the soil being water logged is an increasing problem in some of the smallholder farms- some farms have turned into wetlands and foreign plants are growing and once that happens it is too costly to reclaim that land- as such lack of irrigation scheduling is partly responsible for the loss of good soil- waterlogged yet farmers still continue to water the land” [FDG, Mhlume]
- “we need cushioning especially when prices rise on all ends...we need inputs to help maintain a healthy growth of our cane but at times we are forced to cut corners and just keep hoping for a good outcome...we need subsidies especially when farmers are experiencing challenges- such assistance should be individually based so that the needs of each farm are taken into consideration.”[FDG, Mhlume]
- “there is a growing need for more collaboration between the smallholder farmers and their extension officers so that there is always shared knowledge-there is more benefit for the farmer if they work closely with these officials” [Mhlume]
- “there is an increase in wetlands which were never there before the sugarcane farming...due to lack of irrigation scheduling” [ESA]

### **3. What are the main challenges that you face associated to sugarcane irrigation**

- “...on windy days sprinkler systems lose water through drift and evaporation spray. Drip systems lose water through filter backwashing and flood irrigation system with earth canals lose water through seepage”[FDG, Siphofaneni]
- “there is low water efficiency which results in high water losses... farmers who are relying/sourcing their water from the river reported poor delivery of the water to the crop root zone...the force of the water is uneven... as a result of un-uniform irrigation the sugarcane was uneven”
- “...some new smallholder farmers still need to understand crop water requirement so that they plan around the limited water supply management strategy”
- “lack of irrigation scheduling results in farmers not having strategic decisions to ensure effective use of the available water...some farmers do not know how to spread the limited water over a production season to ensure good crop maintenance and rapid recovery after a drought...”
- “over-irrigation is also responsible for increased incidents of wetlands/swamp development in some of the farms”[FDG, Siphofaneni]
- “poor irrigation scheduling leads to misuse of water and electricity resources, leaching of expensive fertilizers, erosion of the top soil and anaerobic soil conditions leading to yield reductions”[FDG, Siphofaneni]
- “as a result of fluctuation of weather/ temperatures some areas like Siphofaneni have experienced flooding- which has caused some drainage problems and challenges in transportation of the cane out of the farm” [FDG, Siphofaneni]
- “some of the cane growers need the assistance in coming up with irrigation scheduling [extension officer, siphofaneni]
- “there is need for training on how Variable Speed Drive (VSD) and solar can help to lessen the costs of electricity especially during peak irrigation season”[Farmer- Mhlume]



#### 4. What do you know about solar irrigation?

- “we have installed solar BUT the costs are the same...in fact the amount we pay is the same but what is worse is that on cloudy days we cannot draw any power from the solar...what is the point? This thing doesn’t work” [Phakama- Mhlume]
- “there are mixed messages about solar- please give more information so that we are in the same page...some of us have not installed because were told it doesn’t work and it doesn’t reduce any costs [farmer-Mhlume]”
- “...Farmers are challenged because the people who install the solar systems are already aligned with certain financial institutions- this means that there are financial institutions from which it is hard to finish their loans”[FDG]
- “...So far solar installers are already aligned with certain financial institutions-and so it is not possible to break free from some of these banks/financiers and installing solar is another trap that is now hanging over the farmers...how is this project going to help us get some money to help install solar..” [FDG]

#### 5. What kind of support would you need in order to acquire a solar irrigation system

- “is it possible for this project [MEI] to have solar installed at the Maguga dam or somewhere along the pumps so that all farmers receive their share of water required for irrigation...maybe it can reduce the costs of pumping and maybe lessen the water stress we are experiencing..” [FDG, Mhlume].
- “is it possible to develop some debt relief by writing off the monies that smallholder farmers are struggling to settle or renegotiate the repayment terms...maybe that can make it possible for all the farmers to enjoy the proceeds they have been looking for. Farmers need a way of servicing their long-term debts so that their families do not inherit these debts”[FDG, Mhlume]
- “...Farmers need more subsidies, tariff protection and assistance so that they are not overwhelmed by the prices as the competition for cheaper sugar is increasing...and if the sugar being produced with energy from coal is not as desirable how are farmers supposed to obtain the solar system as some of them are still repaying their loans”[FDG]
- “...Now the adoption of solar power feels forced...and how is government going to assist smallholder farmers who might not have the financial muscle to install this new technology? How is this project aiming to help us? If we can have a big solar ‘station’ which is big enough to send power to a lot of farms that would be amazing..”[FDG]



### Annex – Attendance lists

**UBOMBO SUGAR LIMITED**  
AN ILLVOYD SUGAR AFRICA COMPANY

**ATTENDANCE REGISTER**

COURSE NAME: ..... DURATION: .....

FACILITATOR: ..... DATE: .....

	NAME	PHONE	GROWER	SIGNATURE
1.	Maziya Ntombi	76318142	Maplotini	[Signature]
2.	Wandile Maseko	76477595	Maplotini	[Signature]
3.	Ilha Larizwa Gumede	78922798	Maplotini	[Signature]
4.	Nompumelelo Moli	76479358	Makamavu	[Signature]
5.	Maphuzwe Ndamini	76046102	Asibobahle	[Signature]
6.	Vuma Maseko	76409517	Ntokozweni	[Signature]
7.	Wandile Sibiungoigene	76380645	Mhubane	[Signature]
8.	Nantwambi Mshali	76083543	Tikane	[Signature]
9.	Angel Zungu	76362245	Kumbi Ngweni	[Signature]
10.	Nyemphahle Sinqiso	76414495	TIKANE	[Signature]
11.	Phele Phile	7649504	Mhambane	[Signature]
12.	Dube Lindokuhle	76149961	Capite Invest	[Signature]
13.	W. Jason	7600400	Sikhakhe Lindo	[Signature]
14.	Seabo Vilane	76243688	OTabane	[Signature]
15.	Skhumbuzo Dlamini	76043784	Khwasani	[Signature]
16.	Nkomo Phile Shiba	76032978	Ganga Khulu	[Signature]
17.	Phabile Maseko	76040584	Sigwanakatho	[Signature]
18.	Lucky Blinda	76502526	CSA	[Signature]
19.	SIFISO MASHAKA	76073682	Chokos PLANTATION	[Signature]
20.	Jizwe Mkhambane	76143050	Vukunzulu LTD	[Signature]
21.	Photsle Jomaze	76098884	NGUYANO	[Signature]
22.	THUSI SIFISO	76397043	Kuseton/oni	[Signature]
23.	Sponol Nyamphahle	76157371	Sigwanakatho	[Signature]
24.	Mphahle Ndamini	76331905	Mganyanane	[Signature]
25.	NAMINI JUNGLE	76573582	Makabane	[Signature]
26.	Mphahle Ndamini	76710682	Sikhakhe	[Signature]
27.	Mphahle Ndamini	76519515	Malabane	[Signature]
28.	Pheliso	7626745	MEI	[Signature]
29.				



AN ILEVO SUGAR AFRICA COMPANY

ATTENDANCE REGISTER

COURSE NAME:..... DURATION:.....

FACILITATOR:..... DATE:.....

	NAME	PHONE	GROWER	SIGNATURE
1.	SIPHOM MALLIANGA	76115582	SUKUMANI FOMARE	[Signature]
2.	Sifiso Mkhumbi	76291690	Lindzomani	[Signature]
3.	COLUMISA SHONGWE	76790741	KWENTU AKUFANI	[Signature]
4.	MIPENYULO NANKA	76680527	UJAP SILE SAMBA	[Signature]
5.	Blamini NKISIMBI	76345258	MBARACA MABONGENI	[Signature]
6.	Lomlamma Tshabalala	71645218	KILIKAZO INO	[Signature]
7.	SHIMUEL ZWINE	764219110	MTHOMANI	[Signature]
8.	FANDE NGCINHABALI	76622557	MPO-MALONI	[Signature]
9.	Vincens Khanyo	76148709	Mkhosi Yamkhosi	[Signature]
10.	COLUMISA NGCINHABALI	76671039	Siso Senani	[Signature]
11.	IBONON MEGAGUGA	76324833	NIKOKZWENI	[Signature]
12.	Sanele Mabungu	76399448	Sesikwile	[Signature]
13.	Albert Ngcophalala	76688410	Mbezano	[Signature]
14.	Simelane Wandic	76965848	MES Invest ment	[Signature]
15.	Sambelo Dlamini	76110610	Makwabe	[Signature]
16.	Sibusiso Simelane	76070215	Mablandlweni	[Signature]
17.	Sifiso MABE	76499361	QWABE INVESTMENT	[Signature]
18.	Sesizole Nkhini	78406219	Kuhle Kubweni	[Signature]
19.	Bande Mkhanga	78224005	ESA	[Signature]
20.	EPHREM NLAMINI	79519155	ESA	[Signature]
21.	Imelthe Mkhumbi	76393639	ESA	[Signature]
22.	Mangaliso Mhisi	76889036	JMBV	[Signature]
23.	Sifiso Nkomo	76288050	NONONO FRY LTD	[Signature]
24.	Ntoko Simelane	76812629	MTHOMANI	[Signature]
25.	VUSIE GAMEDZE	76387030	MATSENJWA	[Signature]
26.		76127007	BukaKwenzile	[Signature]
27.				
28.				
29.				

Samsung Quad Camera Shot with my Galaxy A73 5G



REGISTRATION NO. 123456789  
DATE OF ISSUE 12 Jan 2018

### RES INTEGRATED MANAGEMENT SYSTEM ATTENDANCE REGISTER

Purpose: Please Tick (V) 1. Meeting ( ) 2. Training ( ) 3. Other (State)

Presented / Chaired by: \_\_\_\_\_ Signature: \_\_\_\_\_

Department/Section: \_\_\_\_\_

Topic/Subject: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Venue: \_\_\_\_\_

No	Name	Signature	Designation	Co. No / Contractor Name
1	Esilweni K. Mkhize	[Signature]	Farmer	M. G. G. Mkhize
2	Mogonyi M. Mkhize	[Signature]	Supervisor	Limbane
3	Mkhize Mkhize	[Signature]	Supervisor	Etiou Sisweni
4	Sipha Mkhize	[Signature]	Team Manager	Esand Hill
5	Mkhize Mkhize	[Signature]	Consultant	Micro Energy Int.
6	Stephen Mkhize	[Signature]	pump attendant	Limane
7	A. K. Mkhize	[Signature]	II	
8	Mkhize	[Signature]		LM
9	Mkhize Mkhize	[Signature]	consultant	70970187
10	Mkhize Mkhize	[Signature]	ESA Irrigation Trainer	76393639
11	Bande Mkhize	[Signature]	ESA	78224005
12	ESAROM DAMON	[Signature]	ESA	7959155
13	Siyaya Mkhize	[Signature]	irrigator	76257890
14	Robert Mkhize	[Signature]		-
15	Mkhize Mkhize	N		78416366
16	Mkhize Mkhize	[Signature]	Supervisor	76086614
17	Mkhize Mkhize	[Signature]	Supervisor	76230580
18	Mkhize Mkhize	[Signature]	Chief Researcher	76043915
19	Mkhize Mkhize	[Signature]	Farmer	78433764
20	S. H. Mkhize Mkhize	[Signature]	H. G. Mkhize Mkhize	76230905
21	SIBANE Mkhize	[Signature]	H. G. Mkhize Mkhize	76987910
22	Veronica Mkhize	[Signature]	limbane	76269498
23	Sabela Mkhize	[Signature]	limbane	76319048
24	Mkhize Mkhize	[Signature]	limbane	76982000
25				
26				
27				



INTEGRATED MANAGEMENT SYSTEM ATTENDANCE REGISTER

Doc No: MS-070-04 Issue No: 1.01 Effective: 14 Apr 2018

Purpose: Please Tick (v) 1 Meeting ( ) 2 Training ( ) 3 Other (State) \_\_\_\_\_

Presented / Chaired by: Patrick Mkhulisa Signature: [Signature]

Department/Section: Outgrowers

Topic/Subject: Irrigation Seminar

Date: 14/09/2023 Time: 0915 Venue: Hambantla Hall

Name	Signature	Designation	Co. No / Contractor Name
1. Thomas Tshabudza	[Signature]	Farm 206	Vuvulane, Winkulu
2. PHTNEAS KUKHLELO	[Signature]	SINGENI	S. SINGENI
3. PHTNEAS NKONYANI	[Signature]	Supervisor	Singobangato
4. LANCE DAMINI	[Signature]	Farmer	Vuvulane
5. Kambiso Mkhulisa	[Signature]	Trainer	Singobangato
6. Mziwakhwe Nkomo	[Signature]	Farmer	Singobangato
7. Levis Mkhulisa	[Signature]	NEVIS	Nkomo
8. Lovemore Damini	[Signature]	Supervisor	T. Rube
9. Lovemore Mkhulisa	[Signature]	ES&I	ESA
10. CARLEM DAMINI	[Signature]	ES&I	ESA
11. Siphiso Siphiso	[Signature]	Farm Mgr	Vuka Sidwaba
12. Vukosi Mkhulisa	[Signature]	INDUNA	VUKA SIVUBA
13. Siphiso Mkhulisa	[Signature]	Induna	Vuvulane
14. Nomsa Mkhulisa	[Signature]	Supervisor	Khulu
15. Amos L. Mkhulisa	[Signature]	Chairman	Mangweni
16. Siphiso Damini	[Signature]	Supervisor	Mangweni
17. Mankoda Shongwe	[Signature]	V-chair	MBINDA
18. Thulani Siphiso	[Signature]	Supervisor	Mqkhabeni
19. Acedo Zwane	[Signature]		Machyngasi
20. LINDIWE NZIMA	[Signature]	VUVULANE	LINDIWE NZIMA
21. Nonhlanhla Mkhulisa	[Signature]	Vuvulane	Nonhlanhla Mkhulisa
22. Siphiso Mkhulisa	[Signature]	RES	SHI
23. BONGANI GUMAYO	[Signature]	Mkhulisa	219 RES
24. Siphiso Mkhulisa	[Signature]	Supervisor	Siphiso
25. Siphiso Mkhulisa	[Signature]	Supervisor	Siphiso
26. Nomsa Mkhulisa	[Signature]	Trainee	Lilanga
27. Siphiso Mkhulisa	[Signature]	Vuvulane	Xvulane

Samsung Quad Camera Shot with my Galaxy A73 5G



**RES CORPORATION** INTEGRATED MANAGEMENT SYSTEM  
**ATTENDANCE REGISTER**

Purpose: Please Tick (x) 1. Meeting ( ) 2. Training ( ) 3. Other (State) \_\_\_\_\_

Presented / Chaired by: \_\_\_\_\_ Signature: \_\_\_\_\_

Department/Section: \_\_\_\_\_

Topic/Subject: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Venue: \_\_\_\_\_

Name	Signature	Designation	Co. No./Contractor Name
1. E. Khuleni K. Mvoto	[Signature]	Farmer	M. Goksoal F.C.
2. Mogenzela Wanda	[Signature]	Supervisor	Umbane
3. i. Umla Matungisa	[Signature]	Supervisor	Umbane
4. Siphelele Masekela	[Signature]	Farm Manager	Leonid Hill
5. Phumela Isela	[Signature]	Consultant	Microwater Int.
6. Stephen Ntshole	[Signature]	Private attendee	Umbane
7. A. Khama	[Signature]	Umbane	
8. Ntshole	[Signature]	Umbane	
9. Lungile Mkhumbane	[Signature]	Consultant	10970187
10. Zwelakhe Mosefane	[Signature]	ESA International	76393639
11. Bende Mkhanga	[Signature]	ESA Consultant	78224005
12. Ephraem Dlamini	[Signature]	ESA	7959155
13. Siyaya Mkhumbane	[Signature]	irrigator	76257880
14. Robert Mkhumbane	[Signature]		
15. Mkhumbane Lubane	[Signature]		78416366
16. David Dlamini	[Signature]	Supervisor	76086614
17. Phumela Mkhumbane	[Signature]	Supervisor	76230580
18. Mathew Mkhumbane	[Signature]	Grant Person	7643915
19. Vusi Dlamini	[Signature]	Farmer	78433764
20. Siphiso Mkhumbane	[Signature]	Hlekemana Nz	76230905
21. Sibani Mkhumbane	[Signature]	Hlekemana	76987910
22. Veronica Dlamini	[Signature]	Umbane	76269498
23. Sabelo Mkhumbane	[Signature]	Umbane	76319048
24. Siphiso Mkhumbane	[Signature]	Umbane	76983000
25. Nkululeko Dlamini	[Signature]	(ESA) Irrig. Engineer	76022455
26. Phumela Mkhumbane	[Signature]	Mng. Office	76028594
27.			

Samsung Quad Camera Shot with my Galaxy A73 5G



INTEGRATED MANAGEMENT SYSTEM ATTENDANCE REGISTER

Doc No: MS-070-04 Issue No: 1.01 Effective: 14 Apr 2018

Purpose: Please Tick (v) 1 Meeting ( ) 2 Training ( ) 3 Other (State) \_\_\_\_\_

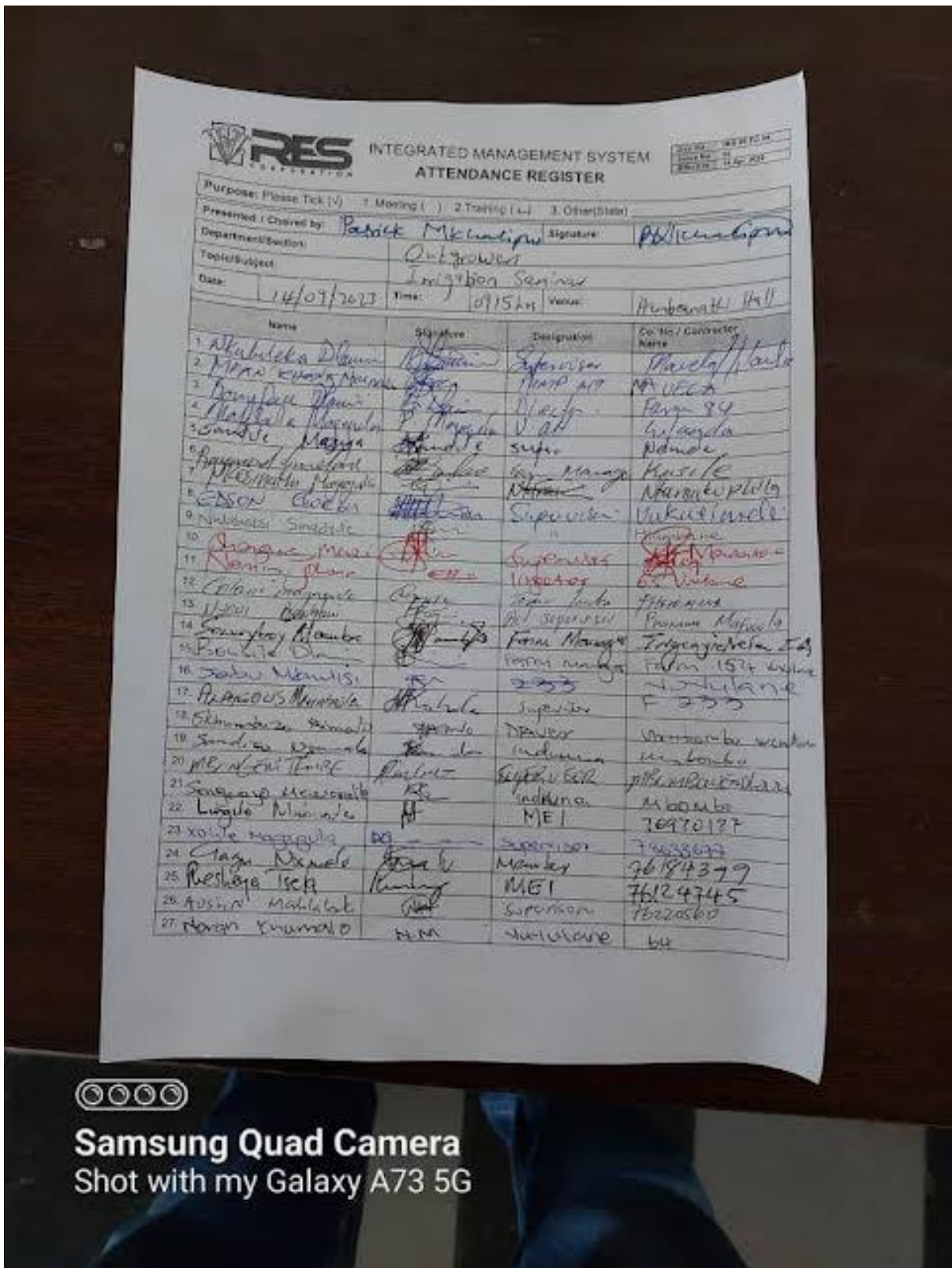
Presented / Chaired by: Patrick Mkhulisa Signature: [Signature]

Department/Section: Outgrowers Topic/Subject: Irrigation Seminar

Date: 14/09/2023 Time: 0915 Venue: Hambantla Hall

Name	Signature	Designation	Co. No / Contractor Name
1. Thomas Tshabudza	[Signature]	Farm 206	Vuvulane, Witsies
2. PHTNEAS KUKHLELO	[Signature]	SINGENI	S. A. B. A. I.
3. PHTNEAS NKONYANE	[Signature]	Supervisor	Singobangato
4. LANCE DAMINI	[Signature]	Farmer	Vuvulane
5. Kambiso Mkhulisa	[Signature]	Trainer	Singobangato
6. Mziwakhwe Nkomo	[Signature]	Farmer	Singobangato
7. Levis Mkhulisa	[Signature]	NEVIS	Nkomo
8. Lovemore Damini	[Signature]	Supervisor	T. R. Quebe
9. Lovemore Mkhulisa	[Signature]	ES&I	ESA
10. CARLEM DAMINI	[Signature]	ES&I	ESA
11. Siphiso Siphiso	[Signature]	Farm Mgr	Vuka Sidwaba
12. Vukosi Mkhulisa	[Signature]	INDUNA	VUKA SIVUBA
13. Siphiso Mkhulisa	[Signature]	Induna	Vuvulane
14. Nomsa Mkhulisa	[Signature]	Supervisor	Khulu
15. Amos L. Mkhulisa	[Signature]	Chairman	Manguzi
16. Siphiso Damini	[Signature]	Supervisor	Manguzi
17. MANDLA SHONGWE	[Signature]	V-chair	MBINDA
18. Thulani Siphiso	[Signature]	Supervisor	Mkhulisa
19. Acedo Zwane	[Signature]		Mkhulisa
20. LINDIWE NZIMA	[Signature]	VUVULANE	LINDIWE NZIMA
21. Nonhlanhla Mkhulisa	[Signature]	Vuvulane	Nonhlanhla Mkhulisa
22. Siphiso Mkhulisa	[Signature]	RES	SHI
23. BONGANI GUMAYO	[Signature]	Mkhulisa	219 RES
24. Siphiso Mkhulisa	[Signature]	Supervisor	Siphiso
25. Siphiso Mkhulisa	[Signature]	Supervisor	Siphiso
26. Nomsa Mkhulisa	[Signature]	Trainee	Lilanga
27. Siphiso Mkhulisa	[Signature]	Vuvulane	Vuvulane

Samsung Quad Camera Shot with my Galaxy A73 5G



Samsung Quad Camera Shot with my Galaxy A73 5G



INTEGRATED MANAGEMENT SYSTEM ATTENDANCE REGISTER

DATE	14/07/2023
TIME	09:15 hrs
VENUE	Huberatti Hall

Purpose: Please Tick (V) 1. Meeting ( ) 2. Training (L) 3. Other (State)

Presented / Chaired by: Patrick Mkhundipho Signature: [Signature]

Department/Section: Outgrower

Topic/Subject: Irrigation Seminar

Date: 14/07/2023 Time: 09:15 hrs Venue: Huberatti Hall

No	Name	Signature	Designation	Co. No / Contractor Name
1	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
2	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
3	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
4	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
5	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
6	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
7	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
8	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
9	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
10	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
11	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
12	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
13	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
14	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
15	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
16	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
17	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
18	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
19	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
20	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
21	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
22	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
23	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
24	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
25	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
26	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola
27	Mkhambela Dlamini	[Signature]	Supervisor	Pharola/Pharola