**BIOGAS ASSESSMENT PROJECT**

**Site ID: 26**

**Date: July 27, 2022**

**Interviewer**: Where did this digester originate from?

**Interviewee**: Mmh (laughs) I am trying to recall the name, but it is not coming to my head… It’s been long, so I’ve forgotten the name. All I can remember is that it came through the agriculture office under a project, which was aimed at conserving and protecting the environment. So, to be honest with you, I have forgotten exactly who brought it here because it’s been a while.

**Interviewer**: So, I presume the same people also funded it. Or, do you know who funded it?

**Interviewee**: Yeah, it must be the same people.

**Interviewer**: Do you remember when it was built, and who built it?

**Interviewee**: I think it was late 2016, if not 2017. I am saying this because I was also involved in a stove-making project around the same time.

**Interviewer**: How long did it take to build it?

**Interviewee**: At first, they came to explain about the project. After that, they went to people who had cows to see if they were interested in owning a biogas digester. Then, they said they were going to come back, and indeed, after three weeks they came. After a week, they brought the digester. Therefore, to make the long story short, they taught us about stove making and biogas. And, it took a month from the first time they came to the point they brought the digester.

**Interviewer**: What was your role?

**Interviewee**: My first role was to take part in the free training. My second role was to provide cow manure from my cow house. To this, I added water to make feedstock that I did myself. I also brought bricks that were not used though. I also dug a hole for the digester bag.

**Interviewer**: Who did the digging? Was it only you?

**Interviewee**: I hired one person to dig the hole.

**Interviewer**: How much did you pay?

**Interviewee**: I paid for K3500 for that. I also paid K5000 for the bricks.

**Interviewer**: Were you told that the work was going to need bricks? And, how come you did not use the bricks?

**Interviewee**: Good one. There was a problem because different people were coming on different days. When the individual who trained us on stove making and biogas came, he told us to dig a hole and to buy bricks and sand. We did that, and we asked him about cement. He told me that they would provide cement, and that they were going to bring two bags of cement. After that individual went, another individual came. When he came, he just came with a plastic digester bag and other equipment like pipes, stoves and stuff. Then, I inquired about cement, because they told me before installing the digester bag that they were going to line the hole with a brick wall. Then, he just responded that he was not gives, so because it was a different person I did bother to ask more questions.

**Interviewer**: (Laughs) did he take the cement for himself, or what?

**Interviewee**: (laughs) I do not know. But, that was the response I was given.

**Interviewer**: Okay, how were you selected as a beneficiary? I mean, we have so many people in this community, how did it happen that it came to [name redacted] house?

**Interviewee**: It wasn’t as if they came straight to me to tell me that they were coming to install the digester here. But, they called people who had cows at the agriculture offices. Then they asked who was willing to accept the technology – that was it. Then, I think four people accepted in the technology. But, I had a great chance of getting one because around that time I was also involved in another project that was to do with the environment which was to do with construction of energy efficient stoves. So when the biogas project came, coupled with my previous experience in the environmental project, it was easy for me to accept it because it was basically aligned to the environment.

**Interviewer**: How many people were called to the agriculture office?

**Interviewee**: I think it was seven to eight people – I’m sure it was eight people… At that time, only eight people in this community had cows. And, some of the people who have cows now that time did not have cows. So, from the eight people, some gave excuses why they did not want to have a digester. Some said they did not like the process of making feedstock, as it was disgusting to them. Some said they had small fences so they had security concerns. Some said they did not have space to put the digester.

**Interviewer**: Okay, did you know about biogas before?

**Interviewee**: Yes

**Interviewer**: Do you mean you knew about biogas before you were called to the agriculture office as a cow farmer?

**Interviewee**: Yes, I had little knowledge about biogas. But, I learned more about biogas after the training. But, to say I knew about the biogas before the training I might be wrong – I was only hearing about it.

**Interviewer**: Where did you learn or hear about this?

**Interviewee**: I heard about it at Mtakataka primary school during training about the environment.

**Interviewer**: What were your expectations?

**Interviewee**: I expected to cook with ease because it is similar to cooking on an electric stove. So, in that regard I expected change. I also expected to stop using charcoal or firewood because I was getting equipment that uses renewable energy for cooking.

**Interviewer:** What did the installers told you to expect from this?

**Interviewee**: They told us that the digester produces gas that moves in pipes to the stove for cooking. They also told us during the training that it produces more gas when there is sunlight unlike when there is no sunrise or in cold season. On this notion, I suggested that they should make storage bags or anything for collecting and storing gas during sunlight to be used in cold times or when there is no sun. Then, they said they were going to look into it, yeah.

**Interviewer**: Oh, that was a brilliant idea. I mean, that is what most people do. Some people do have storage bags or tanks for storing gas to use at later. So, yeah, that was brilliant. Did they say they didn’t have the storage bags or they didn't know about that?

**Interviewee**: Personally, I would expect someone learned like you to know more than a person from the village like me.….And, during the training, I bombarded them with questions. But to say I knew if they had the storage bags or not, then that’s not true…. Nonetheless, that is what I suggested.

**Interviewer**: Okay, what questions did you bombard them with?

**Interviewee**: The first question was about its protection. As you can see, this area is full of sand so with the way the hole was made chances were high that soil was going to collapsing into the pit and cover it up. Therefore, I thought that was a deficit. Secondly, I do not know if it was in Kenya or Ghana, they placed the digester under a shade like structure, I do not know if it was there to protect the bag from rain or something. Also from the tank to the kitchen, they made a draining system of which we did not see here. Also, I suggested that the pipes should be placed or enclosed in another plastic pipe to protect it from kids who stomp over the pipes. It is better to step on the enclosed pipes rather than stomping over the pipes directly. This way it would have protected the joints from disconnecting or anything else. So, that were some of the issues I had to ask them. Also in the kitchen, I suggested that they should clip the pipes to the wall with cable clips. Yeah, yeah.

**Interviewer**: Just like they do with a cable from a satellite to the decoder at a sitting room?

**Interviewee**: ummh, right! yeah, as an essential means of managing and organizing pipe, and for securing the pipe to fixed points on a wall.

**Interviewer**: When you brought the questions, did they answer you? If they did, were you satisfied with their answers?

**Interviewee**: It was like a facilitation training. When I asked a question, I was asked questions like you are asking me by them to figure the answer by myself...... Some people, I do not think it was your group though, came in June to ask me questions as well regarding biogas. I must say a number of people have come here to ask me questions regarding biogas for research, I do not know.

**Interviewer**: Oh, you have received a lot visitors?

**Interviewee**: A lot of people, I think the first ones were auditors who were trying to establish if the digesters were indeed installed. Some other people came as well, and they did ask me how much the digester cost and all that. So, I told them the amount I was told.

**Interviewer**: What were you told was the cost of the digester?

**Interviewee**: They said the cost of the digester was K200000 that time... Then, they inquired if everything was available. Then, I just got all the materials out for them to see what materials I had.

**Interviewer**: Eh, people have bothered by people to answer questions regarding biogas, uh?

**Interviewee**: Not that, no. You come to do research to make things better. When you see there is a problem, you investigate, and then provide solutions. That is good.

**Interviewer**: Yeah, that is true. It is like that. What type of training you receive?

**Interviewee**: I will tell you point-blank, we did not receive any training regarding biogas. I was only trained on efficient stove making by the forestry department. But, during the training, something about biogas came up. And, they even said that biogas was just an supplementary topic. They gave an example, I think on biogas. So, it was just an supplementary topic. They were simply giving examples of cooking technologies that can be used to protect the environment.

**Interviewer**: So the issue of biogas came up as you were discussing efficient stoves?

**Interviewee**: Yeah, yeah.

**Interviewer**: What did they say about biogas?

**Interviewee**: They explained how biogas is produced. They discussed how long the process takes to produce gas. They also explained how to prepare the feedstock, and what things can be used as feedstock - they mentioned, for example, cow manure, chicken manure, pig manure and human manure. Then, I asked if it’s possible to simply connect to the pipes to a pit latrine to produce gas (laughs heavily)

**Interviewer**: (laughs) what was their response to that?

**Interviewee**: They said it is possible, but not ordinary installers can do that because such type of digesters requires a lot skill.

**Interviewer**: You have said the training or the information you got about biogas was just quick and not deep. Still, I would like to know, how prepared to run or operate the digester were you after that?

**Interviewee**: The way they explained, it prepared us on how to prepare feedstock. It also gave us an opportunity to know which materials can be used in place of cow manure as feedstock which itself was very handy especially if there is a shortage of cow manure. Therefore, I can say it prepared us.

**Interviewer**: How many people attended the training and how long was the training?

**Interviewee**: Out of the four people who were given the digesters here, only two of us attended the training. The other two did not attend the training because they were not part of the efficient stove-making project. And, thirty something people attended the whole training and only two of us from this area attended the training. The rest of the people were from different communities, and we were meeting at Mtakataka.

**Interviewer**: It would be like I am asking you to repeating what you have already said, because I feel like you have touched on it but I still want to understand you very well. Why did you allow them to build the digester here? I mean, you had an opportunity to say, “Thanks but I don’t want that”, and you said some people you went to the agriculture office with said “no”. Why did you accept it?

**Interviewee**: Nice one. I like to learn new things. And, I feel it is not good to deny yourself an opportunity to learn new things. It`s good to try out new things because you never know what it may bring. So, I think because of these two things it was easier for me to accept it. Also, they said this thing is for cooking. They did not say it was for decoration or it was some flower. So, I found it useful, and that’s why I accepted it. And, I also knew it was going to make life easier for me. When I was making the decision, I also considered LPG gas stove because I have used it before, and thought they were somewhat similar, so I knew it was going to make me cook things faster.

**Interviewer**: Did you like cooking on LPG?

**Interviewee**: Yeah, I did.

**Interviewer**: This takes to my next question. How did you meet your energy needs before the intervention?

**Interviewee**: I use a charcoal burner for cooking.

**Interviewer**: What about LPG gas? How did you know about LPG gas?

**Interviewee**: Right now, I use charcoal, but previously I was using charcoal, LPG gas and electric stove. But, I abandoned both LPG and electric stoves because I found them expensive.

**Interviewer**: How much LPG gas or charcoal or electric did you use?

**Interviewee**: I used two bags of charcoal. Sometimes, I use one and a three quarters bag of charcoal. It depends on my home availability of that particular month. As for LPG gas and electricity, I don’t know how much LPG or electric I was using, as I was not following.

**Interviewer**: Oh, sometimes you are never home?

**Interviewee**: Yeah, sometimes I'm never home. Sometimes, I do not cook, you see.

**Interviewer**: Are you a businessperson?

**Interviewee**: Eh, I’m someone who does a lot businesses (laughs)

**Interviewer**: (Laughs) do you buy charcoal?

**Interviewee**: Yeah, I do. I do not make charcoal myself.

**Interviewer**: Okay, how much is a bag of charcoal?

**Interviewee**: It’s K7000 now.

**Interviewer**: How much was it back then?

**Interviewee**: It was K3500, sometimes K3000.

**Interviewer**: You said you had cows…

**Interviewee**: Yeah, and I still have. It is behind the house. Now, I have four cows. Back then, I had many cows, but many died during the rainy season. I think they ate something poisonous. So, some died and three were stolen.

**Interviewer**: So that time you had like 10 cows?

**Interviewee**: We had more than 10 cows. We sold some too.

**Interviewer**: How did you manage feedstock before the intervention?

**Interviewee:** We move the manure to the farm. But, manure from biogas and cow house differs. Manure from the cow house is taken to the farm whilst it is dry. As for manure from a digester, it is used when it is fresh.

**Interviewer**: Do you differentiate the two in terms of its strength?

**Interviewee**: No, it’s just that you can’t apply manure direct from the cow house because its heat wilts maize. While manure from a digester is processed in the reactor, so you can apply it directly to the crops. it`s very sunny, you can take the feedstock to the farm on the very same day ... the digester takes out a lot of heat from cow manure. Cow manure contains a lot of heat, and you can even tell by the heat that comes out when preparing the feedstock.

**Interviewer**: Did you use hands?

**Interviewee**: No. In this area, we have a mixer made of wood called Nkhafi. So, we used that one for making feedstock. So as we were making feedstock, we felt the heat when mixing the feedstock or when it spills on your skin.

**Interviewer**: Okay. Moving on, how much feedstock did you feed it to start it up?

**Interviewee**: The quantity of cow manure is equal to the quantity of water. If you use one drum of cow manure, you also use one drum of water. I think when we were starting it up, we used 3 drum, if not 5 drums (200 liters) of water. To this, we also used 3 or 5 drums (200 liters) of cow manure. It has been a long time, so I am not quite sure if it was 3 or 5 drums.

**Interviewer**: So it’s a one to one ratio. Where did you get cow manure and water?

**Interviewee**: I got the manure from my cow house. And, I got the water from the borehole.

**Interviewer**: I can imagine it was some work; it is not easy to get 3 drums of water and 3 drums of manure.

**Interviewee**: Yeah, the good thing that time I had drums. So, I collected the water the day before they came, as I was informed of the day, which they were going to come and install the digester. So, they found everything ready. On that particular day, they were simply mixing cow manure and water in a bucket until they finished.

**Interviewer**: How long did it take to start?

**Interviewee**: It did not take a long time start. After it started, we were not feeding it every day. We used to feed it when we saw that the digester bag was somewhat deflated. And those times we were not feeding it as we did the first time. We were putting maybe one drum (200 liters) or four buckets (20 liters) of manure.

**Interviewer**: How often were you feeding it?

**Interviewee**: In a month, we were feeding it once or twice.

**Interviewer**: So in a month, you were feeding it once or twice with 1 drum of manure or 4 buckets of manure.

**Interviewee**: Yeah, once or twice.

**Interviewer**: How much gas did it produce? Or, how much cooking time did you get? Were you able to cook breakfast, lunch and supper on it?

**Interviewee**: Yeah, that’s how it was. Here in the village we eat in the morning, at noon and in the evening. In other circumstances when we found food, we were cooking in between meals. Thus, in most cases, we were cooking up to 5 PM. At night, or after 5 pm, I was cooking using charcoal, because it was not producing fire after sunset.

**Interviewer**: It was dependent on the sun?

**Interviewee**: Yeah, that is why I said it could have been better if it had a gas storage. That way, we could have been cooking on it all the times.

**Interviewer**: Were you able to cook beans and nsima?

**Interviewee**: I was able to cook beans, nsima without any problems.

**Interviewer**: So, during the time it was working you were not strictly cooking using biogas?

**Interviewee**: Mmh, I was switching back and forth. I cannot lie to say I was only using biogas. Sometimes, I was cooking using charcoal. For example, if I had so many things to cook or if I had visitors. Therefore, I was cooking on biogas and charcoal as well, yeah.

**Interviewer**: Who was responsible for feeding?

**Interviewee**: I was feeding it myself. I stay with a little boy, so he was helping me especially when I was not around. Sometimes, even when I was around he was helping.

**Interviewer**: Okay, what’s your take on the feeding task?

**Interviewee**: It was not tough.

**Interviewer**: You mentioned that some people had issues feeding it, like some people were not comfortable touching and mixing cow manure. It was disgusting to them. Was there a point you felt like “that was true” and that this thing is disgusting or even tiresome?

**Interviewee**: For something’s, what matters is the result. Of course, some people may find it disgusting. As for me, I bought gloves. So, every time I was preparing feedstock I was wearing gloves and mask. So, I did not find it disgusting at all. I was just doing my job with no problem.

**Interviewer**: Okay, okay, what were the maintenance requirements?

**Interviewee**: To maintain this, and if next time I am going to accept it, the hole around the digester bag must be lined first. After building brick wall around it, that is when I can be sure that this thing would be productive or helpful. Therefore, I think the wall needs to go above the hole, and if they can do that I might be willing to build a shade structure made of iron sheet or thatched grass on top of the digester bag to protect it from rain and other things. Secondly, they need to find a means of preventing gas moving directly from the digester bags to the stoves. Instead, gas should move first from the digester bags to a storage facility, and then to the stoves. That way the digester can work because it can work all day as gas could be stored. Thirdly, you give us numbers to call you whenever there is a problem. But, when we call, you do not come to fix the problems. You just say, “We will come, we will come, we will come” and the problem eventually escalates, you see; a problem that is minor, ends up being disastrous.

**Interviewer**: What things were you told to do to maintain it?

**Interviewee**: They said sometimes because the pressure is high, gas leaks at the connection between the bag and pipe. Therefore, they told us do use glue and baking soda to seal any gas leakage.

**Interviewer**: During its life, did you encounter this problem?

**Interviewee**: Yeah, it happened once.

**Interviewer**: Did you manage to fix it?

**Interviewee**: Yes, we fixed it ourselves, and it worked.

**Interviewer**: How long did this take to happen?

**Interviewee**: It took after 7 months after it was installed.

**Interviewer**: Did it meet your needs?

**Interviewee**: Yes, it did.

**Interviewer**: Then why were you using charcoal sometimes, instead of using biogas all the times?

**Interviewee**: Yes, indeed we used charcoal sometimes. For example, when we had like 10 visitors and wanted to cook many things, we could not rely on biogas alone. Therefore, to do things quickly, I was using both charcoal and biogas. Besides that, there are times when the sun is on and off, so biogas tends to be on and off as well. Thus, there were times when we started cooking while the sun was shining and did not have problems. However, once the sun disappeared, it was going off as well. Therefore, to cope I was using charcoal for cooking as well.

**Interviewer**: Didn’t they tell you to put a sand of bag on top of the digester bag when pressure was low to boost the fire?

**Interviewee**: It did not mean less fire was not coming because there was no gas in the bag. But, I think it was sunlight at play in general. Like I said, when there is no sunlight, the bag cools as such it doesn’t released enough gas because movement of gas is limited when it’s cool regardless whether of quantity of the gas- yeah, so that’s what I mean.

**Interviewer**: Okay, okay, was there a time you did put a sand of bag or stones on top of the bag to get more fire at the stove?

**Interviewee**: No.

**Interviewer**: We are going towards the end of the interview. We have done 80%. Moving on, what were the challenges?

**Interviewee**: It’s what I have already said. Sometimes, it was going off while you were busy cooking.

**Interviewer**: Okay, what else?

**Interviewee**: Secondly, when there is a problem, and we call you people, you don't come.

**Interviewer**: (laughs) don’t say that!

**Interviewee**: (Laughs) I mean it, you do not come when there is problem.

**Interviewer**: Why do you think “we” do not come when there is a problem?

**Interviewee**: I even fail to understand that. Maybe, I should ask you why it is like that?

**Interviewer**: Try me, I will be there in an instant (Laughs). How did it stop? Did it stop at once? Or, it was gradually stopped?

**Interviewee**: The digester stopped at once. I think it stopped during the rainy season. When we fed it, the bag was not inflating and it was not producing gas. Then, I thought it was not inflating because it was rainy season. Therefore, I decided to abandon it until the rains were over. So, in summer, I tried to feed it, but the bag didn’t inflate. Then, I thought I had not put enough feedstock. I added more feedstock, but nothing happened.

**Interviewer**: How was the connection between the bag and the pipe [gas connector]? Was it okay?

**Interviewee**: The joint was okay. It’s just that after the rains the digester bag never got inflated. After I saw that the bag was not inflating I called the extension worker, [name redacted]. I even went to the agriculture district officers` office in person to report the issue. I also called another extension worker for this area, [name redacted], who stays in Monkey bay. Mr. [name redacted] came and said he would report the issue to the relevant authorities. As for [name redacted], when I called him, he was just saying the installers were going to come. Then after some time, I gave up and stopped feeding it. I could not continue because I felt like I had put enough manure to get it started once again. Then, I just abandoned it.

**Interviewer**: How long did it work before it stopped working?

**Interviewee**: It worked for two years.

**Interviewer**: So after two years, it stopped completely and you abandoned it?

**Interviewee**: Yeah.

**Interviewer**: Suppose you were given something like this…. But, before that, have you seen something like this before?

**Interviewee**: No.

**Interviewer**: This paper talks about issues common to digesters, possible causes, and their related solutions. What do you think of this type of information, and do you think it would have helped in your case?

**Interviewee**: Yes, it could have helped me a lot because there are some problems that do not need an expert to solve. Of course, some things cannot be solved by an ordinary person, but needs an expert. Therefore, I think this information could have helped us to solve problems, which did not need an expert.

**Interviewer**: Oh thanks. So you think if you were provided this information, you could have fixed your digester and still be working today?

**Interviewee**: Yeah, it is possible that you would have found it working. You would not have found all the stones that are there.

**Interviewer**: (laughs) how did the stones got to the top of the digester bag hole?

**Interviewee**: There was a funeral function, so after everything people thought it was easy to throw the stones on the hole of the digester.

**Interviewer**: Okay, how would you describe the current state of the digester?

**Interviewee**: I can say it is dead. I cannot say it is alive because it is not working. Yes, of course, I still have the equipment, but technically, I do not have a biogas digester. For example, I have the stove and some pipes, but they are not in a condition that they can work.

**Interviewer**: In your opinion, what caused it to fail?

**Interviewee**: As a leaner, it’s going to be difficult for me to say what caused it to fail. But my observation is that when there was not sunlight the bag was deflating. So, when rainy season came, maybe it stayed long without working or producing gas. So, maybe that's why it never got inflated again - there was no sunlight. Therefore, I can simply say it stopped working because there was no sunlight.

**Interviewer**: We have done over 80%. We have like 15% to wind up. Moving forward, you said now that it's not working you have gone back to charcoal, uh.

**Interviewee**: Yeah

**Interviewer**: How do you manage feedstock now that it is not working?

**Interviewee**: We take the manure to the farm.

**Interviewer**: Okay

**Interviewer**: How much manure do you make from your cows?

**Interviewee**: I do not really pay attention to that because neighbors also come to collect manure as well.

**Interviewer**: Do you sell the manure or you give it for free?

**Interviewee**: We just give for free.

**Interviewer**: Did you ever use the digestate as fertilizer for your crops?

**Interviewee**: Good, you have reminded me. The digester had two pipes; of which one was an outlet. The outlet was releasing slurry of ready processed manure. Personally, I feel like the installers’ erred by not making drainage system or a digestate collection point. So, the digestate was initially just flowing anyhow. As for me, I just made a drainage to move the digestate away from the house. So I feel like that was not hygienic, and could have created problems like mosquitoes. Sometimes, we were even stepping in the digestate and that was not pleasant at all.

**Interviewer**: How do you feel it was supposed to be made?

**Interviewee**: They should have dug a hole and placed a bucket in it. Or, they would have made a brick structure and cemented it with creed to contain the digestate.

**Interviewer**: You never used the digestate because there was no structure like that?

**Interviewee**: Yeah, I never used the digestate because there was no structure to collect it. So, it was just flowing anyhow.

**Interviewer**: For two years?

**Interviewee**: Yeah

**Interviewer**: oh, that was a missed opportunity. With the way fertilizer is expensive these days you could have saved some money with that. How much did the reactor cost? You said K200000?

**Interviewee**: Yeah, it was K200000. However, I do not know if the K200000 was only for the bag or for everything. They simply said, “Do you know that the gift we are giving you is worthy K200000”. Therefore, I do not know if it was just the bag or everything.

**Interviewer**: Did you contribute anything in kind? I am thinking of the bricks…

**Interviewee**: Yeah - brick, sand, water and labor.

**Interviewer**: And, it was one person who did the digging?

**Interviewee**: Yeah, I personally didn’t do the digging. I just hired one man to do that.

**Interviewer**: Where did you get the bricks? Did you make them yourself? Or, you bought?

**Interviewee**: Some people make bricks somewhere there. Therefore, I just bought from them.

**Interviewer**: For K5000?

**Interviewee**: Yeah, I paid K5000 for the bricks, and then I collected them too.

**Interviewer**: Did you pay the people who collected the bricks?

**Interviewee**: Yes, I paid them. They transport the bricks on a wheelbarrow. It was 300 bricks. I remember I was told by the installers to gather 300 bricks. I paid 2 people K1000 each, if not K1200. I have forgotten, it has been some time.

**Interviewer**: And, the sand?

**Interviewee**: I think I paid K500.

**Interviewer**: What special items had to be imported from another country?

**Interviewee**: On that, I will give you wrong information because I do not know where they bought the equipment.

**Interviewer**: We are the remaining with two questions. What is your opinion of biogas? What can you say about biogas?

**Interviewee**: Biogas is good, it is important, and it has the potential of helping many people. It can also help to save and protect the environment. And, looking at the current state of our forests and environment, I think it is a solution to this problem. However, this can only be realized when the digesters are installed properly and are working.

**Interviewer**: How is it important and how can it help many?

**Interviewee**: It can help people in terms of cooking as well as fertilizer from the digestate. So people especially those that do not have resources to buy fertilizer can fully utilize digesters by taking digestate to the farms. Thus, people can benefit from digesters in two ways; one as an energy source for cooking, and secondly as fertilizer for maize.

**Interviewer**: I want to understand you clearly. And, I must say I’m impressed by your level of knowledge and understanding. You saw that the digestate was just flowing anyhow, and if I heard you correctly, you were told that the slurry could be used as fertilizer. So, why didn’t you commit to make a thing to collect the digestate to use in your farm as fertilizer? I mean, the way you have explained I can see that you thought about doing that or you could have even made another pit or even bought a bucket. I do not think that could have been a challenge for you.

**Interviewee**: If they bring with the digester today, I could do that because I’ve seen it. However, when you have a new thing it’s always hard to know everything about it. I’m now saying the digestate could be fertilizer because, generally, before taking cow manure to the fields we first splash water on it to take away its heat [strength]. In the same way, the digester takes out of the heat from the cow manure. The heat is what we see or say is biogas, and the slurry is the processed fertilizer that can be used. So, in the first place I did not have this idea because it was a new thing to me and it was my first time to use it. The other thing is that we did not receive training before and after the installation of the digester. I think if the installer had given us training, then we would have knowledge, and maybe we could have putting a bucket to collect the digestate all the times. As for the drainage, they said we could put drainage for the digestate to flow into, and it’s exactly what we did.

**Interviewer**: Okay, I see. What’s the future of biogas in Malawi? Is the future bright or dark?

**Interviewee**: I think it can be bright, if and only if the digesters are installed properly and the installers need organization in their conduct… If some people are able to use biogas for generating energy for maize mills, then it means that this thing is viable. Moreover, it also shows that it could be done here in Malawi. However, the problem with Malawi is that the people are corrupt in their conduct. I don’t think it’s proper to install a digester without lining it with a brick wall around it. I don’t think it makes sense to send someone to install a digester without lining it. Yet, they said themselves that the hole needs lining. They know, or they have learnt somewhere that a digester bag is supposed be placed in a lined brick wall. The trainer who said this was not an ordinary person like me. It was someone who had gone through proper training. So he knew what he was talking about. People when they are leaving for fieldwork are told what materials would be required, or they even know themselves whatever is needed. So, it didn't make sense to me to see the installer coming here without cement expecting to find cement here, and even saying he was not given cement - that not true. So, change needs to start at the top. The top managers need to be serious. They need to provide necessary resources to the field workers. If they can’t, field workers need to tell top managers what is not practical and what is not. And, when fieldworkers are not given what to be provide, then they shouldn’t bother coming to the community people. Because, when things don’t work, it’s people on the ground that actually get all the blame. For example, let’s talk about the cement in my case. I don’t expect a person who has spent K200000 on digester can to fail to buy cement, and that time cement was very cheap. I think it was around K4000. Do you think a person would fail to buy two bags of cement at K8000 to protect a thing of K200000. That`s not true. It’s doesn’t make sense!

**Interviewer**: Yeah, it’s doesn’t make sense. And, that’s why I even laughed when you pointed that out. Do you feel someone somewhere stole the bags of cement?

**Interviewee**: Yes - no doubt. The trainer said that a digester must build with a brick wall around it. This person was not an ordinary person; he was learned, and knew these things. So, it didn’t make sense to see the other person coming without cement.

**Interviewer**: Okay, last one, if you would have designed your own waste or any intervention, what could you have chosen instead?

**Interviewee**: That’s a difficult one for me. Maybe, if you could give me examples.

**Interviewer**: There are so many alternatives. You think of solar panels, compost making. I was at one house there they told me Wonder Bag. Do you know that?

**Interviewee**: No

**Interviewer**: There is windmill. There is so many, electricity!

**Interviewee**: I would choose solar panels.

**Interviewer**: Why?

**Interviewee**: Because it can be used in different ways; you can use solar for cooking, lighting and even for charging our phones – and with the current electricity problem, I think it can help a lot in that regard.

**Interviewer**: Even biogas can do that! Do you know?

**Interviewee**: (laughs) We weren’t told so how could we know.

**Interviewer**: (laughs) that’s was my last question. In closing, do you have anything to say?

**Interviewee**: First, I would like to say thank you for coming. We have always being thankful to the people that gave us the digesters. Moreover, I do not take it for granted that I was one of the few beneficiaries. But, my plea is if you start a project, you need to ensure that you have started on a good note in order to finish it properly or not to end it unfinished. For example, if you look at the organization that installed biogas, they got funding from donors. So donors do follow up projects, it could even be that the people who you are with are donors trying to follow up on the project to see if the digesters were indeed installed. So, if there were shortcuts, some of us don’t mind, we don't hide the truth, we just say what happened. So, this may cause projects to end prematurely and even block others from benefitting from the projects. For students who are doing research work to gain knowledge. My plea is first they need to build proper working relationship with the people, and then in the future, work with the communities to make the necessary changes. They need to give back to the community. I hope you understand!

**Interviewer**: Yeah, I do. Okay, thanks. That is the end of our interview.

**Interviewee**: Thanks. I appreciate your coming.