**BIOGAS ASSESSMENT PROJECT**

**Site ID: 61**

**Date: December 12, 2022**

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

**Interviewee:** I have forgotten the name of the company… I am not sure if the company’s name was Solar Energy, or something.

**Interviewer**: Who funded it?

**Interviewee**: I think it was funded by a non-governmental organization, but the funds came through government because the project implementers came with people from the Phalombe District Counciland other people from State House. I believe people from the council were involved because government policy that time did not allow NGOs to work without the District Council.

**Interviewer**: Who built it?

**Interviewee**: A company called solar energy built it. I am not sure about the name of the company though. But the man who is responsible for its installation was a man called [name redacted], an [redacted] man.

**Interviewer**: How many people fromthe installation company came? And from your side, how many were you?

**Interviewee**: They came two, and we were four, if not five.

**Interviewer**: What was your role?

**Interviewee**: I bought bricks; I also paid the hired workers and everything else that had to do with the construction except for the digester bag and its accessories.

**Interviewer**: How much did you pay the people who dug it?

**Interviewee**: I hired three people to dig the hole and I paid them K20000.

**Interviewer**: You are also saying you lined it with a brick wall. How many bags of cement did you use?

**Interviewee**: I used two and a half bag.

**Interviewer**: How much was a bag of cement then?

**Interviewee**: It was K8500.

**Interviewer**: Oh, that was a lot. How much did you pay people who sourced feedstock and prepared it? And, how many were they?

**Interviewee**: I paid the women K3, 000 each for collecting water, and they were three. And, I paid the same women K4, 000 to collect manure.

**Interviewer:** Where did you get cow manure and water?

**Interviewee:** We got water from a borehole that is at the school [200 – 300 meters]. As for the manure, we got some from our cow house and some from other people within the village. I think we got it from two people and they just shared us for free.

**Interviewer:** How far are they from your house?

**Interviewee:** 15 or 20 minutes walk from here.

**Interviewer**: How much did you pay for the bricks? And, how many bricks?

**Interviewee**: I used the bricks of K9000. I do not know how many were there.

**Interviewer**: Okay, how were you selected as a beneficiary?

**Interviewee**: I was selected because I had the requirements. As you know, you need fresh cow manure to run it, so I had cows. People in the community know those who have and those who do not have. So the people identified me, but I had the right to deny it too. But I accepted it because I wanted to try it out. Of course, some people had cows but refused it because they thought that it was involving and could not manage it.

**Interviewer**: What was the selection process?

**Interviewee**: First, the project implementers liaised with Area Development Committee (ADC). And then, ADC mobilized chiefs to summon community people or VDC (Village development committee) to identify the beneficiaries. And then, I think ADC or VDC where briefed about biogas for two days by the implementers.

**Interviewer**: So, how were you specifically chosen? Were you chosen at community level meeting or at ADC meeting because you are ADC chair?

**Interviewee**: We had communication as ADC from the DPD [Director of Planning and Development] that the project implementers were coming, so we arranged for a meeting. I was personally called by the DPD to arrange themeeting. Then, when the project implementers came, they told us that we should identify people who had cows and the commitment to get the digesters, so that people could see how useful the digesters were to the community. So, yeah, we agreed to identify the people through the Chiefs and VDC – So as an ADC chairperson who had cow and interest to own a digester, I was advised by the other members to get one.

**Interviewer**: Did you know about biogas before?

**Interviewee**: I knew about biogas when they came and briefed us about it.

**Interviewer**: What were your expectations?

**Interviewee**: I expected that once we got the digesters we would not be buying firewood, and even running around cutting trees for firewood. So we expected to benefit and to cook with ease.

**Interviewer**: I can imagine that they told you that you would be using the digesters for cooking. Apart from this, what else did they tell you to expect?

**Interviewee**: The main thing was that the digesters were for cooking. And they told us that with the right equipment, we could also use the gas for welding – So that is what they told us.

**Interviewer**: Did they tell you that you could use it as fertilizer as well?

**Interviewee**: They told us that we could use the digestate as fertilizer. So we were using dry or fresh digestate as fertilizer, and it was working very well. And, I have to saythe only benefit I saw from the digester was that we got digestate from it. And, the digestate was strong enough that we did not need to add inorganic fertilizer to boost its strength.

**Interviewer**: Did they tell you that you could use it for lighting too?

**Interviewee**: No, they did not say that. They just said that we could use it for cooking as well as a source of fertilizer.

**Interviewer**: What kind of training did you receive?

**Interviewee**: The training we received was about its operation. First, they taught us how to make the initial feedstock. So they advised us to find five bags (50 kg) of fresh cow manure and a drum (200 liters) of water, and then mix it to have suitable slurry. After that, they advised us to wait for a week, if not two weeks for gas production process. And, they told us that we would see the bag getting full around that time, and indeed, it got full. And, even when we started the stove, it produced strong fire, however, that was only at the beginning. After sometime, the bag started shrinking despite feeding it, and eventually we found it of no use. Then, the rains came and submersed the digester bag in the hole. After that, it flipped over, and then it got buried.

**Interviewer**: Okay, where did this training occur? And, who were the participants?

**Interviewee**: We were just briefed by the project implementers, and people from the council were there too. So after that, the installers started coming to install the digesters.

**Interviewer**: Let me get you crystal clear on this. Did you and the other beneficiaries get trained? Were the beneficiary trained?

**Interviewee**: Aaah, no. The beneficiaries I doubt if they were trained - frankly speaking, they were not trained. It is only that the project implementers brief ADC and the council about the project. So that is where we learned some of the things about biogas. And, I remember the ADC requested a thorough training for themselves and the beneficiaries because people thought that biogas was complex and needed sufficient skills and knowledge to be managed. But, I do not think they had enough funds to conduct the trainings. I think they had limited funds.

**Interviewer**: Why do you say that?

**Interviewee**: Anyone could see that training was crucial, so only resources could have hampered the training.

**Interviewer**: How did you meet your energy needs before the training?

**Interviewee**: I was using charcoal and firewood.

**Interviewer**: Where did you get firewood?

**Interviewee**: We buy firewood but sometimes we get it from the trees around. But you cannot rely on the trees around because cooking on firewood consumes a lot of firewood as a result it can finish all the trees around. And, I do feel houses look respectable and are enjoyable when there are trees around. So, you cannot cut trees around because that is disaster.

**Interviewer**: That is true. How much firewood and charcoal were you using?

**Interviewee**: It was a lot of firewood, but it is difficult to quantify it. So, roughly I can say we were using three bundles of firewood and two bags of charcoal per month.

**Interviewer**: You are saying that time you had cows, and I believe this time you still have, how many cows did you have that time?

**Interviewee**: I had four cows.

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

**Interviewee**: I was only heaping cow manure for some time to process, and then around the growing season I was simply spreading the manure in the field.

**Interviewer**: How did it work after commissioning?

**Interviewee**: On the first day, we did manage to cook nsima and beans around lunchtime. But, in the evening, it did not work at all [Approximately 2 hours of cook time on the first day]. I assumed that we exhausted the gas in the bag that day. The next day, I was able to make tea, and warm water for bathing [30 minutes – 1 hour]. But from that time on, we could not manage to cook nsima. We were only able to cookside dish of eggs or fish [approximately 30 minutes of cooking time]. When we did put nsima on the stove the fire was going off as the nsima was simmering, them we used to continue with firewood and charcoal. And when we waited for sometime and switched it on again, the fire was coming strong but not for more than minute or two – So that was the challenge we had with it.

**Interviewer**: So, you were not able to cook in the morning, in the afternoon, and in the evening on it?

**Interviewee**: Ah, not possible – not possible. And even the other beneficiaries started complaining that they had wasted there money for nothing. We were just worried people that time – we just wasted time - and they made us interact withcowmanure for nothing. But, if it had worked, people would not have complained about interacting with cow manure.

**Interviewer**: Yeah, I have heard a lot of grumbling about it.

**Interviewee**: Yeah, and the people need to be compensated with powerful solar panels to usefor lighting and other things. That is the only way to say sorry to them – Leaving them just like that is not fair – It does not just feel right.

**Interviewer**: I see. What were the operation requirements?

**Interviewee**: They advised us to feed it everyday with 20 kg of fresh cow manure mixed thoroughly with water, and people were doing that. But, I just do not know why it did not work. So because it was just an experiment, I believe they got something wrong – Yeah, they told us that it was just a try out, so maybe the technology had and has issues.

**Interviewer**: Perhaps. How did you prepare the feedstock?

**Interviewee**: Some were using hands; some were using sticks to mix the feedstock. The people did not have gloves for feedstock preparation.

**Interviewer**: Oh, it was tough.

**Interviewee**: Yeah, it was causing itching and twitching on the fingertips right under the fingernails. So, sometimes to avoid this I was hiring people to make feedstock for us.

**Interviewer**: How much were you paying them?

**Interviewee:** It was not a lot, maybe K400 or K500.

**Interviewer**: How much water were you adding to the 20 kg of feedstock?

**Interviewee**: They were not clear on that. They just advised us tomakefeedstock of good thickness, not too watery and not too thick as well.

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

**Interviewee**: My wife was responsible for feeding it. Sometimes, I was hiring people to make the feedstock. Sometimes, I was doing it myself.

**Interviewer**: How did you feel about feeding it? Did you not feel that it was hard work or gross?

**Interviewee**: We accepted the digester, so it meant we accepted everything that came with it. If you accept something, you accept everything that comes along with it. It is like marriage – if you marry someone, it means you have accepted everything about the other person.

**Interviewer**: Sure, what were the maintenance requirements?

**Interviewee**: As for my digester, it never malfunctioned. The only problem is that it got buried after the rains - you know our area is flood-prone.

**Interviewer**: Tough, who was responsible for its maintenance?

**Interviewee**: They advised us to call them when it had a problem. So, they gave us their numbers, but when we called them they could not be reach, and sometimes they did not just answer. But in their statements, they left us the numbers so that they would be following-up but they never followed up. Nevertheless, we had another group that came just to do research on the digesters. So, since the digesters were installed they are the only people that came to find out about the digesters.

**Interviewer**: Okay, did it meet your needs?

**Interviewee**: During the first day or week, it made us think that it would meet our needs, but it never did. So, after that we continued using charcoal and firewood.

**Interviewer**: What were the challenges?

**Interviewee**: The digester did not just produce sufficient fire despite feeding it thoroughly. The only thing I was contented with the digester was that it was producing enough digestate and that the digestate was effective. Thus, the problem is that it never produced sufficient gas enough to help us.

**Interviewer**: During that time, was the bag getting full?

**Interviewee**: Yes, it was. And, it was even scaring us that it could burst. It was getting that full! And, when it was that full, it was making sound that it was forcing us to put something on the stove to get it a bit shrunk.

**Interviewer**: So the bag was getting full, but it was not just producing enough fire?

**Interviewee**: No, it was producing strong fire, but the fire was not taking long to go off at the stove.

**Interviewer**: Like how many minutes?

**Interviewee**: Maybe 30 minutes at most, but during that time the intensity of the fire was slowly going down.

**Interviewer**: How long did you use your digester before it stopped?

**Interviewee**: I used it for 5 months.

**Interviewer**: Did you notice that it was leaking gas somewhere?

**Interviewee**: No, we did not.

**Interviewer**: What did you do after it stopped working?

**Interviewee**: I did nothing because the bag got flipped over in the hole. There was nothing I could have done since the bag was heavy too. Then, it got buried and it is still buried today. If you could dig up the place, you would find it.

**Interviewer**: Did you notify the installers or project implementers about this?

**Interviewee**: I tried to but as I said, their numbers were not going through. Then, I changed phones also, so I lost their contacts.

**Interviewer**: Were you given information on in writing regarding technical problems of digesters, their and possible solutions?

**Interviewee**: No.

**Interviewer**: What do you think about that kind of information and do you think it would have helped you?

**Interviewee**: Yes, it could have helped us because it would have been helping us to identify the issues, and then how to act afterwards to solve the issues – it is disappointing that we didn't receive that kind of information.

**Interviewer**: How would you describe the current state of your digester today?

**Interviewee**: I still have the equipment, for example, the stove. It is only the digester bag that is still buried in the ground. We could not get it out because there was so much manure and water in it.And, also we still have the inlet and outlet pipes, but they are seriously damaged.

**Interviewer**: How did it reach this stage? And, in your opinion, what cause it?

**Interviewee**: I think they were here to try out the digesters, so they did not fully understand how the digesters work and how they could help people. So, I think they just thought that it was a good innovation to help the people to stop using firewood and charcoal, but they did not understand its technicalities. Simply put, I think it was just an experiment, and at the end, it just showed that the digesters could not work.

**Interviewer**: How do you meet your energy needs now? Do you still buy charcoal and firewood?

**Interviewee**: Yeah, we still do that.

**Interviewer**: We are almost through with our interview. We have about five or six questions left. How much did the reactor cost?

**Interviewee**: I don’t really remember what the cost was, but the mentioned something like K150, 000 – yeah, I remember they mentioned that figure, though, it’s been a long time to remember all that.

**Interviewer**: Did you contribute anything in kind?

**Interviewee**: I only spent the money on bricks and labour. The rest of the things were theirs.

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

**Interviewee**: Ah, everything was from Malawi.

**Interviewer**: Did the digester help you save money?

**Interviewee**: (laughs) I only maybe save money for 2 days. I cooked nsima on it for a day or two days, so I saved the moneywhich I could have used on firewood or charcoal… But, when it came, I felt excited that I was going to save money, my expectation was just too high.

**Interviewer**: Okay, what is your opinion of biogas?

**Interviewee**: Since it was a try out, I feel like the project implementers need to improve their innovation…. Initially, people here had interest in it, but when they saw that it was not benefiting the beneficiaries they lost interest.

**Interviewer**: So people in Phalombe do not want biogas?

**Interviewee**: Ah, at first people had interest in biogas, but now I do not believe that they can embrace it. So, if they want to try out another innovation then it should be solar powered. Also, I feel biogas is hard to fit in our community because of the floods we usually get. So, it is very easy for the digester bags to get buried in soil after rain, because also the soil is not compact enough.

**Interviewer**: If you would have designed your own waste or energy intervention, what could you have chosen instead?

**Interviewee**: I don’t know if there are other new innovations happening other than biogas – That said Ican only think of solar panels which can generate enough energy to help people cook. We just needed to mount solar panels on top our houses.

**Interviewer**: Biogas, no?

**Interviewee**: My friend, they way I saw it, I cannot manage it – No, it should not come here again. Or, maybe if it is possible to use different feedstock then maybe it can work. But, I only know that it uses animal manure.

**Interviewer**: Some digesters use food waste but the limitation is that there is little food left over at household level to meet its demand.

**Interviewee**: Yeah, that is true. And, you cannot go buy food baggage at the market because it is costly too. And, operating it with that can even be more expensive than charcoal.

**Interviewer**: Yeah, what are your last words?

**Interviewee**: The digesters brought a lot of hope to the community of Senior Chief [name redacted] – and all the beneficiaries were happy to get a digester, and we thanked the donors that provided the digesters through the government. But, our happiness was short lived. At first, we thought we could benefit from the digesters, but we ended up benefiting nothing. So, if the donors want to help us and bring something again, if it is possible, they should bring another innovation, and not biogas.

**Interviewer**: Interesting. Thanks for the interview.

**Interviewee**: Welcome for calling too..