**BIOGAS ASSESSMENT PROJECT**

**Site ID: 42**

**Date: September 29, 2022**

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

**Interviewee:** The installers came with the clerk of the T/A. He simply told us that they had decided to install the digester at our house, so, I accepted them.

**Interviewer:** Did they tell you were the installers were coming from? Which organization or government agency they were from?

**Interviewee:** Ah, no. They just introduced themselves as a non-governmental organization, and they didn’t say the name of the organization.

**Interviewer:** Who built it?

**Interviewee:** My children and I dug the hole. Initially, we dug the hole at mango tree, and then they asked us to dig at another hole close to the kitchen and to finish in three days, because they would come to install the digester bag. So, we dug the hole with vigor, and when the installers came they told us that it was okay. After that, they placed the digester bag inside the hole and connected two white pipes onto the bag. Then they told us to feed it with manure and they left saying they would come back to commission it. After that, I started feeding the bag with feedstock until I was exhausted, as it was not easy to gather manure from a certain village somewhat far from here. The manure I was getting from my animal house was not sufficient, so that`s why I was sourcing manure there. Then, after some days, the bag got full while I was waiting for them to come, but they were not coming. Then, they came and found the bag shrunk, after I had fed it with the first charge. Still, they assembled the remaining parts like the two bottles, the stove, pipes, and then advised us to feed it again. They also showed us how to switch it on, if we got the bag was full. Since then I have never seen them again.

**Interviewer:** How long has it been?

**Interviewee:** It has been 4 years now.

**Interviewer:** How many people in total?

**Interviewee:** We were four people. But, my brother and his four children too came to see what was happening, so they were helping too, though they were not there full time.

**Interviewer:** How many people from the installation company came?

**Interviewee:** It was four people as well including the T/A's clerk.

**Interviewer:** How many days did it take you to dig?

**Interviewee:** It two us four days; there days to dig the hole and one day to install the digester.

**Interviewer:** How was it like to dig the hole? I can imagine that it was not easy to dig a hole for 3 days.

**Interviewee:** It was hard work because the round hole that they advised us to dig was deep and huge. And, I found the hole very risky to children especially in the rainy season. I remember, whenever I went to the field I was worried about children failing into it… And, even after we got the bag out, there was always plenty of water in the hole.

**Interviewer:** What was your role?

**Interviewee:** We were asked to make bricks, and that they would bring cement, so that they could line the hole with a brick wall. But, sadly, the bag of cement never came, so they just placed the digester bag in an hole that was not lined. And, if I remember well, after a year or so, the soil or sides collapsed into that hole so the hole wider and became too dangerous for the kids. So, after we got the digester bag out, we were also responsible for covering the hole with soil Thus, when we covered it up and planted a guava tree on it. So, that guava tree is 2 years old or so.

**Interviewer:** You were told that they would bring cement to line it up hole but the next time they came, they didn’t bring cement and line it up. What did you say to them? Or, what did they say about the bag cement and the whole arrangement when they came the second time?

**Interviewee:** Two different groups of people came. It’s the first group of installers who told us about the cement. The second group just brought the digester bags, placed the bag and assembled the digester. So we couldn’t have asked the second group about what the first group told us.

**Interviewer:** We have so many people in this community and a lot of households. How were you selected as beneficiary?

**Interviewee:** I don’t know how I was exactly chosen. But, I think they chose me because I had livestock so they thought I could operate it. That time I had 25 pigs and goats. So, the clerk of the T/A Nsanama knew about it because he always moves around the communities to transact with chiefs. But, they told me they had chosen me together with other beneficiaries from Nsanama Village, Mulipa and 3 other villages. In this village, however, the only chose me.

**Interviewer:** So there was some sort of selection process, right? It wasn’t hand picking?

**Interviewee:** Yeah, the T/A liaised with our chief to find one suitable person to get the digester here. So, our chief knew that we had many cattle, so he chose us. So, we can say we were chosen by our chief in collaboration with the clerk of the T/A.

**Interviewer:** You had a right to say no, why did you accept it to be built here?

**Interviewee:** I accepted it because it hurts me when I go around searching for firewood, which is scarce resource. So when they told me that with the digester I would be able to cook without firewood I had no choice but accepting it. So, after I accepted it and I had to buy cow manure from Mkwatamu Village, and then prepared feedstock with bare hands to feed the digester.

**Interviewer:** You are telling me you were chosen because you had livestock; 20 pigs, sheep and goats. Why didn’t you use those to start up your digester? Why did you buy manure when you had livestock?

**Interviewee:** It’s because when I made feedstock of pig manure it was coming out too hard. I wouldn't also use goat dung because it was also always also hard and dry, and they told us to use soft and fresh manure like cow manure. So, that’s why I was buying cow dung to use it as feedstock.

**Interviewer:** You mean you couldn’t find fresh pig and mix with water to make feedstock that was not hard?

**Interviewee:** It’s a hard to find fresh pig dung because pigs are always moving about and it’s rarely to find them in their animal house. So we were getting very little manure. Also, even when we gathered the dung, it’s always dry to mix and have a suitable slurry. So, it was easy to make feedstock with cow dung, and that’s why we preferred cow manure.

**Interviewer:** So why were you not just gathering the pig dung and soaking it in water for a day to soften it up, and then use it later?

**Interviewee:** Of course, I was doing that, but I was told that I needed to feed it every day with a bucket (20 liter) fresh manure, so that’s why I was buying fresh cow dung everyday

**Interviewer:** Didyou know about biogas before?

**Interviewee:** I didn’t know anything about biogas because I had not own one before. I knew nothing about biogas.

**Interviewer:** Soyou learned about it when the installers came with it here it?

**Interviewee:** Yeah

**Interviewer:** What was your expectation about it?

**Interviewee:** They told us that after getting the digester, we would be able to cooking with gas long as we feed it. With the fire, we would be able to cook everything and even boil water for bathing, and that’s why I was attracted to it. And, I found it very interesting because my wife wouldn’t be going around searching for firewood that is hard to source.

**Interviewer:** Okay, what else?

**Interviewee:** Hmm, no.

**Interviewer:** What about using it for lighting?

**Interviewee:** No, they didn't say that.

**Interviewer:** What about using it as a fertilizer?

**Interviewee:** They did. They said once we started using it would be producing digestate at the outlet which can be used as fertilizer.

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

**Interviewee:** We didn’t receive any training, and they didn’t tell us that we would go for training.

**Interviewer:** If you didn’t receive any training, then how were you able to switch it on and off?

**Interviewee:** We never used it because it never produced gas. I mean, for it work it needed to gas in the bag, but once the bag shrunk we tried to feed it and it never got inflated. And once the installers left on that day, they have never returned.

**Interviewer**: (laughs) I can imagine that they told you how to switch it on and off and how to make feedstock, right?

**Interviewee**: Yes, they told us that. The taught us how to switch it on and off when the bag was full; they told us that day that the slurry which comes out of the outlet can be used as fertilizer. But, we did not switch it on because it had no gas after the bag shrunk.

**Interviewer**: Oh, how did you meet your energy needs before the Intervention?

**Interviewee**: We only used. Firewood

**Interviewer**: What about charcoal?

**Interviewee**: Charcoal is for the rich, my son. So we use firewood, and sometime we simply cut bluegum trees around.

**Interviewer**: I can see that the use bluegum trees from within, and where do you take the other firewood?

**Interviewee**: We get it from our farming fields.

**Interviewer**: Where are you farm?

**Interviewee**: It’s somewhere far.

**Interviewer**: If you leave 6:00 in the morning, what time do you return?

**Interviewee**: Somewhere around 9 in the morning, it’s not too far.

**Interviewer**: You said that time you had pigs and, goats, do you still have the animals?

**Interviewee**: No, the pigs got killed by African swine fever. As for the goats, we sold them all.

**Interviewer**: How many goats did you had?

**Interviewee**: I had 10 goats, and I had 25 pigs and I was spending a lot of money on maize grain. I remember, I was buying K1200 a bag of maize grain, and the livestock was eating that in four days. I can’t think of an animal that eats as a pig, around this time you to feed it, and you also feed it 3 other time, and if you don’t feed them 4 or 5 times they would be following you around whenever you are carrying plates.

**Interviewer**: How did you manage your feedstock i.e. goat and pig manure before the intervention?

**Interviewee**: I was gathering dung in a pit and store it for some time. Then, I was collecting and using it as fertilizer in my farm.

**Interviewer**: Some people say those type of manure doesn’t work. What’s your take?

**Interviewee**: It depends on how you make it, and how you generally view it. Some people even say that inorganic fertilizer doesn’t work, imagine. So as far as making the manure, I was putting the manure in a hole, cover it, and then add more manure and cover it again, so this way it works.

**Interviewer**: Were you adding some other things to the manure?

**Interviewee**: We were adding a lot of thing, for example, maize grain and stocks, water etc. until we filled it up.

**Interviewer**: Let’s talk in detailin regards to commissioning of the digester. The first time you interacted with the installers was when they came with the clerk of the TA, and they ask to dig a hole. From that day how long did it take them to return with the bag?

**Interviewee**: The first installers came and identified somewhere near the mango tree, and advised us to dig a hole for the digester and we did. Then, the next installers came and told us to dig somewhere else because they felt the shadow of the tree and it was not aligned well with the movement of the sun. They felt that in the afternoon the sun was going to be on the other side of the house, so it was going to be difficult to expose the digester to the sun. So, we dug the hole for two days, and after two months they came with digester bag a white pipes. I remember, that day they found me in the field that I had to be called by child. After I reached home, we started making feedstock and we feed the digester - I worked with my children to collect water to make feedstock, but it was a lot of water and a lot of work. After that, they came again 3 weeks or so with green pipes, a stove and other fittings. But, at that time the bag that which was full days prior to their visit was shrunk. So, they still assembled the digester and told us to feed it, and that when the bag was full we were supposed to switch it on. Unfortunately, it never got full and the installers too never came. We tried feeding it, but even though we were feeding it, the bag continued to shrink. .

**Interviewer**: How much feedstock did you use to start it up?

**Interviewee**: On the first day, we made feedstock of four bags (50 kg) of cow manure and 24 buckets (20 liters) of water. We got the manure by buying the bags from people from another village. I also recall that collecting water was not easy, even though I was supported it by my girls. So, when they came the next time, and they found that the bag was shrunk. Then, they asked us to feed it with 3 buckets (20 liters) of manure, which we got from our animals.

**Interviewer**: What manure did you use from you animals?

**Interviewee**: Goat and pig manure.

**Interviewer**: Okay, I get it. How much was a bag of manure?

**Interviewee**: We bought the bag at K300 each.

**Interviewer**: How far from here did you get the manure?

**Interviewee**: It was far from here. It was taking me 30 minutes to 60 minutes to go back and forth on a bicycle.

**Interviewer**: Where did you get the water?

**Interviewee**: We got it from a borehole that side.

**Interviewer**: How far is it from here?

**Interviewee**: Approximately, 1.5 kilometers.

**Interviewer**: How many girls supported you in collecting water?

**Interviewee**: Four girls.

**Interviewer**: When you were feeding the digesters were they installer present?

**Interviewee**: During the first time, they were there. But, the second time when we were trying to start it up, they only told us how much feedstock to feed it.

**Interviewer**: How much water did you add the second time when you were trying to revamp it?

**Interviewee**: It was two buckets of water.

**Interviewer**: So you started it up with 3 buckets of manure and 2 buckets of water?

**Interviewee**: Correct. And, the following morning the bag got full and I thought it would work, but when we returned from the farm we found bag shrunk.

**Interviewer**: And, since you tried to revamp it, they have never come back?

**Interviewee**: No, they never returned, and we had nowhere to turn to. And, when I met the TA clerk I asked him about the installers, and he just told me that the installers were “Fake” (laughs). And, he told me that in all the digester didn’t work in the installed them, zero. They just wasted money and fuel for nothing. What hurts me most is that they asked me to make burned bricks, which was very involving. The made me burn bricks for nothing. I feel like the country is too much corrupt, and it’s not declining.

**Interviewer**: When you look at all this, why do you think the installers never came? Why would someone bring a digester bag, pipes and a stove, and then not follow up?

**Interviewee**: We were baffled as well. We didn’t know if they were occupied with other work, or if they had gone somewhere else to install the digesters. They left me the two cell phone numbers, but when I called them, they didn’t reply. Then, I lost the numbers and stopped following up!

**Interviewer**: Did you ever see fire on it, even the littlest flame on it?

**Interviewee**: We didn’t see any type of fire or flame whatsoever. We didn’t even dare to put a pot on the stove. What happened was that the bag was shrinking day by day from the first day we tried it with them. I mean, they asked us to light it up, but it didn’t produce fire. Immediately after that they left. That was there habit, they weren’t staying long as you have stayed here [30 minutes]. When they were leaving, they advised us to feed it again to revamp it, and try to switch in. But, the bag kept on shrinking and it never worked. Then, after sometime something started rotting and the area started stinking very much like dumpsite. People were even complaining and asking what was causing the odor when they were passing by.

**Interviewer**: Did they teach you how to switch it on when they were leaving the last time?

**Interviewee**: They showed us how to switch on the stove. They told us that we need matchstick to light it up.

**Interviewer**: How many other times did feed it after feeding it the second time when you tried to revamp it?

**Interviewee**: They told us to feed it with 10 bucket of manure everyday.

**Interviewer**: How much water did you add?

**Interviewee**: 20 liters of water –But, even though we were feeding it nothing changed, it kept on deflating. I feel it reached this state because the installers were not closely monitoring thedigesters and us. And, we feel if the installershad come the time the bag was inflated, it could have worked – and we could have seen fire.

**Interviewer**:What were the operation requirements?

**Interviewee**: They told us that we were supposed to feed the digester with animal manure or food waste.

**Interviewer**: and water, right?

**Interviewee**: Water too.

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

**Interviewee**: We were mixing the feedstock with water, and then we stir. After that, we used to get a cup and draw the feedstock from the bucket and pour into the digester bag via the inlet pipe. And , they gave us plastic sheet to cover the inlet and outlet pipes after feeding it.

**Interviewer**: How did you handle the feedstock?

**Interviewee**: We used to handle the manure with bare hands, as we weren’t given any protective clothing. So, after handling it, I was washing my hands with you soap. I was doing this because I really wantesd to use it for cooking, and I didn’t want my wife to stress about sourcing firewood.

**Interviewer**: I asked you about, how many times did you feed after trying to revamp it? I think I didn’t get a response, or if I got you response, it wasn’t clear to me.

**Interviewee**: We tried to feed it everyday day for a very long time. It was quite a long time, uncountable.

**Interviewer**: Maybe 2 weeks

**Interviewee**: I think we fed it for four consecutive weeks. We didn’t miss it a day because we were so serious about starting it up. After feeding it for four weeks and seeing no changes, we lost hope and conceded that we had failed.

**Interviewer**: Did it ever release digestate at the outlet?

**Interviewee**: No, it never did.

**Interviewer**: How did you construct the digestate collection point?

**Interviewee**: We just dug the hole at the outlet, but it never released digestate as the bag never got full.

**Interviewer**:You said was it stinking, how come? I thought you were closing the inlet and outlet pipes after feeding it.

**Interviewee**: After the rains started, the hole got filled with water to the extent that the bag was submersed in water. So, when the rains ended, things started rotting around the digester hole and it was producing a very bad odor, it was like a wastewater treatment plant. But, before it was wasn`t producing any smell. I blame the installers for not coming when the bag got full. I’m sure if they had come that time, things would have worked out differently.

**Interviewer**:What were the maintenance requirements?

**Interviewee**: They left us their phone numbers, so that we could notify them on any issue, but the numbers couldn’t be reached. We called, but they never responded. We tried both lines, airtel and tnm, but never got a response. So that a negative because we were forced to buy airtime at a time we didn’t really want to buy airtime, and even had little money.

**Interviewer**:So we can say the installers were responsible for maintenance, right?

**Interviewee**: Maybe, because we don’t know what the arrangement could have been after commissioning it.

**Interviewer**: My next question was to ask you if it met your needs, but that can’t be answered. Let’s put it this way, what are you cooking needs?

**Interviewee**: it’s what everyone wants. Everyone wants to be able to cook when he wishes to cook, so we hoped for the same. It’s just unfortunate that it did not work at all. After three years, the bag was about to be completely covered, so we just removed it. I just cut the digester, because I failed to carry it from the hole, as it was filled with feedstock.

**Interviewer**: So, you didn’t remove it to make a roof sheet as I’ve seen?

**Interviewee**: (laughs) No I removed it because it was being covered with soil. So, I cut it because I failed to carry it from the hole. And, it was coincidental that once I got it out, my kitchen roof started to leak, so I just made it a roof sheet.

**Interviewer**: Okay, what were the challenges?

**Interviewee**: The first problem was that when it rained the hole was filled with water, and it was a threat to the kids. The other thing was that the hole was getting wider and wider as its sides were collapsing into the hole. This was not supposed to happen though because they promised us cement and to line the hole. They even asked us to make bricks for that purpose, so we just burnt bricks for nothing. Another challenge was that it was not easy to carry of fresh manure - It was hard work. So, I worked for nothing, and I lost my money for nothing too.

**Interviewer**: I thought you had a bicycle.

**Interviewee**: Yes, I have but I couldn’t ride the bicycle while the bag was on, I was putting the bag of manure on the carrier, and then move by pushing the bicycle while walking.

**Interviewer**: Have you seen something like this [sheet of intervention]?

**Interviewee**: No

**Interviewer**: What do you think of this information and do you think it would have helped you?

**Interviewee**: The information would have helped because we could have known what was supposed to be done to rectify the problem. It’s sad that in our case we didn’t have such information as a result when the digester failed we were clueless. So,that’s why we just cut it off as we did and use it as a roof and a mat.

**Interviewer**:We are in September 2022. Let’s suppose the installers call you and ask about the digester, what would you say?

**Interviewee**: I would tell them that the digester is broken down and its parts are just dispersed. I would also tell them that the digester reached this stage because they didn’t follow up for 6 years. If you saw the pipes and metal bars on where I showed you pipes and stove for the digester, that is equipment left by a certain organization that was constructing pit latrines for community. After they finished their work they asked me to keep the materials for them, but it has been two or three years now without returning to get their equipment too. I hope they will come one day too to get their things.

**Interviewer**: We have talked at length and many issues have come up. I want to know, how did the digester reach this stage? And, in your opinion, what caused it?

**Interviewee**: I think it reached this stage because we weren’t trained, so we did not know what to do. Everything that was said was just too quick to follow and wasn't enough. But, I can’t definitively say they or we are cause of its failure. Also, I feel like they took a lot of time to come, install and commission it, and that’s why they found the bag shrunk. On top of this, there was communication break down between the installers and us. We failed to report to them the problem because they couldn’t respond to our calls despite the fact that they gave us their numbers. All in all, I feel training was a key issue, and the behavior of the installers leave a lot to be desired. I feel like they were only coming here because they were told to do so by their boss – they had no will and interest in the whole work. But, on our part, I feel like we committed ourselves and that’s why we even went to a far place to buy cow manure and all that. You have found the digester bag cut and the pipes dispersed because the installers were not serious. You can’t wait for 4 years. It’s just too much. That time can’t even work in marriage. You have seen people going to South Africa for 4 years in search of greener pastures. But, when they return the find their wives pregnant with other men – Four years is a lot of time.

**Interviewer**: How do you make your energy needs now?

**Interviewee**: We use firewood now. But, these days we use an energy efficient stove, which was brought by a certain NGO.

**Interviewer**: Do you know their name?

**Interviewee**: No, here in village we just receive without really paying too much attention to the providers.

**Interviewer**: Does energy stoves work?

**Interviewee**: Yeah, it saves a lot wood.

**Interviewer**: Do you know how much firewood do you use in a month?

**Interviewee**: Hmm, I don’t know.

**Interviewer**: We are moving towards the interview. How much did the reactor cost?

**Interviewee**: They didn’t tell us. The installers were not staying long to share that information. You have stayed two or three times more than they used to stay.

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

**Interviewee**: We only spend money on cow manure. People were even surprised to see me buying cow manure. But, I had to buy it even I had animals just to make it work.

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

**Interviewee**: It must be from abroad. It can be from here.

**Interviewer**: What makes you say so?

**Interviewee**: When I saw the digester bag, my thinking was that it is not from Malawi. The thing didn’t Malawi like. Plus, I think they said the organization that brought the digesters was from abroad, so the digester had to be from abroad too.

**Interviewer**: What is your opinion of Biogas.

**Interviewee**: That time when I got it, I wanted biogas because I wanted it to solve my cooking problems. Right now, I don’t know whether I will have it again or on. But, I still want it or something else for cooking [cuts of by wife (do you still want Biogas? Not again)]… It sad I didn’t use it. If I had used it for four or five years, I wouldn’t have had any problem with it. But, in this instance, it’s bad and I only lost my money because of it. I lost my energy in digging and carry manure too.

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

**Interviewee**: I can think of energy efficient stoves, because it saves firewood.

**Interviewer**: That was my last question, do you have any last words?

**Interviewee**: I thank you a lot for coming here to ask me question. We didn’t even think people know that we were beneficiaries. So, yeah, that’s what happened with my biogas. Thanks.

**Interviewer**: Thanks for welcoming me. I have learnt one or two things. Thanks.

**Interviewee**: Welcome.