**BIOGAS ASSESSMENT PROJECT**

**Site ID: 53**

**Date: October 1, 2022**

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

**Interviewee**: It came by man called [name redacted].

**Interviewer**: I think I know him. It must be [name redacted] from Intrinsic. Okay, who designed it?

**Interviewee**: It must be the same person.

**Interviewer**: Okay, who funded it?

**Interviewee**: That I don't know.

**Interviewer**: When was it built?

**Interviewee**: It was 2017, I believe.

**Interviewer**: Who built it?

**Interviewee**: After the installers came, I was asked to dig a hole of 1-meter deep and 1-meter diameter. Then, they placed the bag in the hole – it was a big hole!

**Interviewer**: So, who did the job?

**Interviewee**: I did the job.

**Interviewer**: How many of you?

**Interviewee**: After I started digging, I saw that I could not manage, so I hired one person to finish the work.

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

**Interviewee**: I paid him K1000.

**Interviewer**: How long did it take you to dig the hole?

**Interviewee**: It wasn’t a lot of days. It took us three days.

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

**Interviewee**: Three people came.

**Interviewer**: How were you selected as a beneficiary?

**Interviewee**: It was just luck because the person who was supposed to get the digester from Machado village did not have cows, so they decided to give me. So, I was chosen because I had cows, as you know digesters cannot work without cow manure. Thus, it is not like I was chosen after a community meeting or something, no – I was only considered because I had cows.

**Interviewer**: What was your first encounter with the project implementers like?

**Interviewee**: The first time the project implementers came, they asked me about my welfare and then they told me that they wanted to help me… [Briefly interrupted by a visitor]. Then, I asked them how, and they said that they would bring a technology for cooking. After that, they came again with a certain woman. We fed the digester with feedstock and commissioned it. But, it only worked for 5 days, and then it stopped producing fire. Then, another group of people came, I think it was the third group to come, and they told us the digesters seemed not to work everywhere, so they were thinking of bringing solar panels – so that’s what happened!

**Interviewer**: So the first time they came, did they came alone as project implementers or they came with people from the community?

**Interviewee**: They came with the person you are with, the former ADC (Area Development Committee) chairperson.

**Interviewer**: Okay, so ADC members came?

**Interviewee**: No, it was just him and them. So, they came like 4 people including him, and he came in his capacity as ADC Chair. And, that’s when they started talking about bringing the equipment for cooking.

**Interviewer**: You had the right to deny the technology. Why did you accept it to be built here?

**Interviewee**: I accepted it because I thought it was beneficial. Firewood is difficult to find here, so I expected to use it for cooking, and I was very excited to get a digester. And that time, as you can see, I was ready old and I had just lost my wife, so I expected it to help me personally by providing an alternative that would have stop me from going to the mountains to get firewood – so, I was very grateful to get it.

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

**Interviewee**: No, I didn’t know about biogas. No one here knew about it. It was my first time to see it - It was a first of its kind here in this village.

**Interviewer**: So you became aware of biogas when they brought it here?

**Interviewee**: Yeah. I leant about it when they came and talked about it as I have said.

**Interviewer**: What were your expectations?

**Interviewee**: I was very happy to get it. And, I had high expectations of it. I expected it to be beneficial.

**Interviewer**: How beneficial?

**Interviewee**: I expected it to relieve the struggle we face in finding firewood for cooking; firewood is difficult to find, so we expected to cook with ease by its coming.

**Interviewer**: I take it that they told you that you would be using it for cooking, what else?

**Interviewee**: They just told us that we would be using it for cooking food and boiling water for bathing.

**Interviewer**: Did they tell you about lighting?

**Interviewee**: No. But, after it failed to work, they brought the idea of bringing a solar panel. So, I believe that’s when we would have had an opportunity to use it for lighting.

**Interviewer**: Did they tell you that it produces digestate that you can use as fertilizer?

**Interviewee**: No, they didn’t tell us. They only told us to feed it with manure, and that we should dig a hole at the outlet in which slurry would fall into. But, they didn’t say anything about using the manure as fertilizer in our farms.

**Interviewer**: So after everything was done, or before everything was done, what kind of training did you receive?

**Interviewee**: No, we didn't.

**Interviewer**: Then, how were you able to operate it?

**Interviewee**: I asked them that if is it malfunctioned, what were we supposed to do, and they told me that we should report to the extension workers.

**Interviewer**: Which ones?

**Interviewee**: The agriculture extension workers.

**Interviewer**: Okay, fine. I imagine that it wasn’t the only thing you were told. I mean, with that you wouldn’t know how to operate it - how to turn it on and off and the like.

**Interviewee**: Okay, I understand. They called us to the kitchen where there was a stove, and then they showed us the button for turning it on and off. So, after turning it on, it was producing flames, and they told us to use a matchstick to light up the flames, if it failed to light up on its own – that’s what they told us.

**Interviewer**: So there were times you were lighting it up without using a matchstick?

**Interviewee**: Yeah. It was lighting up the flames without striking a matchstick. But, sometimes it needed matchstick to light up the flames.

**Interviewer**: Under what circumstances were you striking a matchstick to start up the flame?

**Interviewee**: When we turned it on and saw that no flame was lighted up, that’s when we struck a matchstick to start the fire. So the matchstick was there only to boost and light up the gas when it couldn’t on its own.

**Interviewer**: Oh, I understand. So, you were taught how to start up the fire, and I can imagine you were told how to prepare…

**Interviewee**: feedstock, yeah, we were told how to prepare feedstock – yeah, they to us that.

**Interviewer**: What did they say?

**Interviewee**: They told us that to make feedstock, we need fresh cow manure; add water, and then mix. Then, they told us that to make feedstock we need one bucket (20 liter) and add 4 buckets (20 liters) of water.

**Interviewer**: So you were putting one bucket of cow manure like that one, and then add four buckets of that?

**Interviewee**: Yeah, we were using a bucket of that size.

**Interviewer:** Okay. How did you meet your energy needs before the intervention?

**Interviewee**: We used firewood for cooking. We were using the bluegum trees around. So, we used to cut the trees, and then dry them up as you can see there.

**Interviewer**: Yeah, and I can also see a lot of bluegum tree here, and not just here, people here in general have bluegum trees. How did that come about?

**Interviewee**: We planted these bluegum trees long ago, even though the mountains had trees had trees that time. We knew that the trees in the mountains were not ours, so that’s why we planted our own. So, these are our private trees, and I feel like we were right in our thinking then. Because now you can’t find a 3-meter tree in the mountains, so we only depend on these trees for firewood.

**Interviewer**: Where did you get the trees? Did you get it from an NGO?

**Interviewee**: We got it from the government through the agriculture office.

**Interviewer**: So when you want to cook you only use your trees,?

**Interviewee**: Yeah.

**Interviewer**: Is it enough?

**Interviewee**: Yeah, we get enough. But, it’s depleting because we have cut enough trees, so we need to plant more trees again.

**Interviewer**: Do you buy charcoal?

**Interviewee**: No, I don’t.

**Interviewer**: By any chance, do you know how much firewood do you use in a month? Or, is it difficult to estimate?

**Interviewee**: We can’t know because it’s very hard to measure.

**Interviewer**: You say you had cows, and I believe you still have them.

**Interviewee**: Yeah, I still have.

**Interviewer**: And, how did you manage your cow manure that time?

**Interviewee**: I was using it as fertilizer.

**Interviewer**: Okay, does it works?

**Interviewee**: It works, but you need to mix it with inorganic fertilizer to boost up its strength.

**Interviewer**: Let’s talk about how your digester worked. For a digester to work, it needs feeding. First, you feed it with large huge amount of feedstock to start it up. Then, you feed it regularly but this time the quantity differs from the first charge. How much feedstock did you start it up with?

**Interviewee**: We used two bags (50kg) of cow manure and large volume of water.

**Interviewer**: Like how much water?

**Interviewee**: We used six water containers.

**Interviewer**: Which containers?

**Interviewee**: Those ones!

**Interviewer**: Oh, the plastic jelly cans [20 liters].

**Interviewee**: Yeah.

**Interviewer**: How long did it take to start up? I mean you can’t feed it and expect it to start working on the same day; it takes time for the process to start up and produce gas?

**Interviewee**: The same day the woman came to prepare feedstock, it was the same day that we started it.

**Interviewer**: Mm-hmm

**Interviewee**: Yeah, it wasn’t as if they said they would come another day – it was the same day. It was not as they gave us a week or a year, no. It was the same day.

**Interviewer**: How long did it take that day? Did they came in the morning and you started up in late in the afternoon?

**Interviewee**: No, it was around the same time they came. We just said fed it that day and after sometime we started up the stove.

**Interviewer**: Same day?

**Interviewee**: Same day!

**Interviewer**: Oh?

**Interviewee**: Yeah! It was the same day, for sure.

**Interviewer**: They didn't give you time to commission it?

**Interviewee**: No, they didn’t say they would come back to commission it. It was the same day?

**Interviewer**: Let me get you clear on this. The first day you fed the digester with cow manure and water, was it the same day you commissioned it?

**Interviewee**: Yeah, we commissioned it the same day. That was what happened!

**Interviewer**: Okay, okay. How did it work after commissioning? Or, how much cooking time did you get? Or, let me put it this way, what did you cook on that day?

**Interviewee**: A cup of water started to heat up (less than 2 minutes), then it went off. The first time, it started with strong flames, then it started going down, and then it eventually went off. And, we didn’t even cook nsima or side dish of anything.

**Interviewer**: Okay, what happened on the second day?

**Interviewee**: It was the same thing. We didn’t cook anything and it didn’t even start.

**Interviewer**: What was the gas for?

**Interviewee**: It was only for cooking.

**Interviewer**: So, if you ever used it, that was when you tried to boil the water?

**Interviewee**: Yeah!

**Interviewer**: That was tough

**Interviewee**: Very tough, indeed, because it was not easy to make the feedstock - it was hard work. Then, we saw that it couldn’t help us, so we abandoned it.

**Interviewer**: Where did you get the cow manure you used to start it up? Where did you get two the bags you used to start it up?

**Interviewee**: I got it from my cow house.

**Interviewer**: How many cows did you have that time?

**Interviewee**: I had 15 cows, but now I have less.

**Interviewer**: Now, how much do you have?

**Interviewee**: I have 14.

**Interviewer**: Oh, you still have a lot. Where did you get the water?

**Interviewee**: We got it from white house you can see there. They have a solar powered water pump, which pumps water from the ground.

**Interviewer**: What’s there?

**Interviewee**: A catholic priest resides there.

**Interviewer**: Oh, I see. That’s like 800 meters from here. Did you buy?

**Interviewee**: No, he just helped us.

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

**Interviewee**: They told us that, if we wanted it to use it, we needed to feed it every day with cow manure and water – and nothing else.

**Interviewer**: How much feedstock were you supposed to feed it?

**Interviewee**: They advised us to feed it with one bucket (20 liter) of cow manure and two buckets (20 liters) of water every day – Yeah, the water was supposed to be more than cow manure.

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

**Interviewee**: We used to place cow manure in a bucket, add water, and then mix thoroughly to get suitable slurry. Then, we used to feed the digester through the white inlet pipe.

**Interviewer**: How would you describe this task?

**Interviewee**: I found the job very tough. Had it been that it was working, then it could have been understandable. So, you just had to feel sorry for us. And, I felt like I was abused to do all that job without gaining something out at the end.

**Interviewer**: Yeah, sorry for that. Who was responsible for feeding it?

**Interviewee**: I was the only person feeding it.

**Interviewer**: What were maintenance requirements?

**Interviewee**: They didn’t tell us anything about maintenance. They only told us to feed it to get gas, and to dig at hole at the outlet to contain the digestate.

**Interviewer**: How did you use the digestate?

**Interviewee**: We were simply throwing it away.

**Interviewer**: Where?

**Interviewee**: Behind the kitchen, we had a refuse pit so that’s where we used to dispose of the digestate.

**Interviewer**: And, you have told me that you were told to consult the agriculture extension workers whenever there was a problem, right? So, if thing that had to do with maintenance was in the hands of the agriculture office, I suppose.

**Interviewee**: Yeah!

**Interviewer**: My next question was to ask you if it met your needs, but clearly, it didn’t…

**Interviewee**: It didn’t indeed. We never cooked nsima on it, no even once! My wish was to use it in the morning, at lunch to cook nsima, and in the evening to cook as well. But, it never did. I didn’t even use it boil water!

**Interviewer**: What were the challenges?

**Interviewee**: The only problem we face with it is that it didn’t produce fire – it didn’t work.

**Interviewer**: If you saw fire that was only after commissioning and that was for less than 2 or 3 minutes, and after that it never worked.

**Interviewee**: Yeah!

**Interviewer**: How did the fire go off that 2 or 3 minutes? Did it go off at once, or it declined and eventually stopped?

**Interviewee**: The fire was going down slowly. It only worked for 2 minutes. And after that, I tried to feed it, but it didn’t work. I fed it for 3 days then I stopped feeding it and that was its end.

**Interviewer**: So, when you said you used it for 5 days, you mean interacted with it for 5 days but never used it?

**Interviewee**: Definitely!

**Interviewer**: Why didn’t you feed for a week or so, and then see that what was going to happen?

**Interviewee**: I feel like I was committed and did my best to feed it for 3 days, but nothing happened. So, I knew that it was not going to work.

**Interviewer**: How can I see your commitment when you fed it for just 3 days?

**Interviewee**: I fed it first day with loads of feedstock, and the day or two after I fed it also. The following day, I fed it also. So I feel like I tried. I wouldn’t have kept on when I was seeing any results.

**Interviewer**: What went wrong? Did you notice any leakage in the pipes?

**Interviewee**: There wasn’t many pipes. It was just one pipe, which traveled from the bag to the stove.

**Interviewer**: What happened after?

**Interviewee**: I had their numbers too, so when I called them they were just like they would come.

**Interviewer**: And, they didn’t come?

**Interviewee**: Yeah, never.

**Interviewer**: Did you report to the agriculture office?

**Interviewee**: No, I just reported directly.

**Interviewer**: Why? I thought the told you to report to them.

**Interviewee**: I didn’t interact with the agriculture at any point in the installation of this, so I did think of them.

**Interviewer**: But that was what you were told.

**Interviewee**: Yeah. But, I believe that if I had interacted with, I believe I would have.

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

**Interviewee**: No.

**Interviewer**: This is information about common problems of biogas, their causes and solutions. What do you think of the information and do you think it would have helped?

**Interviewee**: The installers never said that the digester malfunctions. And, they didn’t explain to us how to respond to any problem. They only told us to consult the extension workers when there was a problem. Then, they also told us how to switch it on. And, it was not difficult to start it up the fire – it was easy.

**Interviewer**: Has anyone else to come to follow up on the digester?

**Interviewee**: No, one has ever come.

**Interviewer**: So if you were given information on how to respond to problem, do you think the information on would have helped you?

**Interviewee**: It’s a very important because it would have given us a clue on how to respond to the problem. As I have said, I didn't do anything to solve the problem. So maybe if I had such information, I would have tried my best to fix it

**Interviewer**: How would you describe the current state of your digester? In other words, if the installers call you today on your phone to find out about the digester, what would you tell them?

**Interviewee**: I would inform them the digester is not working, and I’m sure they know that it’s not working because they left it not working. And, the last time they were here, we talked about it, and that’s why they said they would bring solar panels (laughs). They saw the pot of water failing to boil, and they admitted that it didn’t work, and that’s when they brought the idea of solar panels. That was their last words, and that was their goodbye.

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

**Interviewee**: I don’t know why it failed. We were told to make feedstock, we did and fed it, but it didn’t work. So, I don’t why it didn’t work.

**Interviewer**: It wrong to suggest the installers had no technical skill to install it and make work?

**Interviewee**: After it did not work, I asked the installers if they had installed the digesters anywhere else and worked. And they responded that the digesters work, and I told them that it’s not good to give someone something that’s useless. Then, I quizzed them if they had installed the digesters somewhere else and worked, and that’s when they brushed me off saying that the digesters work. So, I did question their capabilities, and they responded that the digesters work.

**Interviewer**: How do you meet your energy needs now that it’s not working?

**Interviewee**: We still use firewood.

**Interviewer**: How do you manage your feedstock now?

**Interviewee**: We use it as fertilizer in our fields. So what we do is, we get the manure and place the manure between ridges. Then, we make new ridges between the old ridges.

**Interviewer**: Okay. How much did the reactor cost?

**Interviewee**: No, they didn’t tell us.

**Interviewer**: Did they inform you who funded it?

**Interviewee**: No, they didn’t.

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

**Interviewee**: No, I only dug the hole.

**Interviewer**: Did you line the hole?

**Interviewee**: No, we didn’t.

**Interviewer**: Why not? You weren’t told?

**Interviewee**: We saw that we would waste cement. And, out of the beneficiaries, I think it was only one person who lined it. It didn’t make sense to use it for a week and line it with a brick wall or plaster.

**Interviewer**: Were you told to line it before installation or after installation?

**Interviewee**: At whatever point, we could have lined it up. So, when it didn’t work, we didn’t even think of lining it.

**Interviewer**: Apart from digging the hole, sourcing water and cow manure, what else did you do?

**Interviewee**: No, that was all.

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

**Interviewee**: They didn’t discuss that with us.

**Interviewer**: What’s your take though?

**Interviewee**: I have never seen it in any store, so that makes me think it’s from abroad.

**Interviewer**: My next question was to ask you if it helped you to save money or helped, but it’s clear, it didn’t save you any money or helped you in any way…

**Interviewee**: Yeah, I only wasted my energy.

**Interviewer**: And, even the money used to hire the person who helped you to dig the hole. If you could meet the installers today, what would you say to them?

**Interviewee**: I can’t thank them because we were helped in any way. If it had worked for some time and then stopped, I would have thanked them. I can’t thank them for what they did – what should I thank them for? (Laughs)

**Interviewer**: What is your opinion of biogas?

**Interviewee**: Biogas is much needed, but it’s sad that it didn’t work. If it had worked, it would have helped us a lot

**Interviewer**: Why was it much needed, and how could it have helped you?

**Interviewee**: It could have helped us to meet our cooking needs.

**Interviewer**: What’s the future of biogas?

**Interviewee**: Biogas is very helpful in improving livelihood. So, I would like to see it continuing.

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

**Interviewee**: I would have chosen a solar powered stove, and not a stove that uses firewood.

**Interviewer**: Why?

**Interviewee**: It has more benefits than woodstoves. Wood stoves take time for igniting. So, that’s why a solar powered stove is better than a woodstove.

**Interviewer**: Yeah, maybe solar is really a good alternative, and even the installers recommend solar. What are your last words?

**Interviewee**: I thank you for coming. What I’ve said about the digester not helping us, I would have also told the installer, if they had come. So, thanks for coming, and if you can have a chance to meet them, you can tell them that we thanked them for nothing and for a useless thing. So, thanks for coming you have helped us to release our concerns and cries…. What happened is a sad story, a very sad story. We expected to benefit, but we didn’t anything from it – overall, I feel like a digester is a very beneficial thing.

**Interviewer**: It’s really a sad story.

**Interviewee**: and you just have to feel sorry.

**Interviewer**: Yeah, some of the things sound dramatic and funny, but it’s really unfortunate that it happened. Thanks for the interview.

**Interviewee**: Welcome!