**SMALL-SCALE BIOGAS DIGESTERS AS DEVELOPMENT AID: TALES OF HUBRIS AND FAILURE**

**Site ID: 04**

**Date: 2nd June, 2021**

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

**Interviewee:** It came from Water For People as a demonstration. They said they brought it here because this village was first village to become open defecation free in T/A Chapananga. They said we were doing well in terms of latrine construction and hygiene practices. So, as a token of appreciation they decided to build a biogas here, and that this was one of the many that was to come.

**Interviewer:** Did they explicitly say it was a demo?

**Interviewee:** Yes.

**Interviewer:** Tell me about the demonstration, how did it go?

**Interviewee:** After installation I remember calling them to inform about them that it was not producing biogas. They came and communicated that they were going to come again to fix the problem. But since that time they have never come again. And I heard their project phased out and the white man who was supporting them returned to his home.

**Interviewer:** Did you meet the white man?

**Interviewee:** Yes, he used to come as a matter of fact, this chair I’m sitting on he is the one who gave me (Laughs).

**Interviewer:** (Laughs) you must have been very close. Okay, who designed it?

**Interviewee:** Aaaah, they didn’t tell me who designed it. They just said they had finished similar interventions with other communities. And they went on to say, they wanted people from this community to learn from the initiative so that when they complete their project people should learn from me and replicate the same in their houses.

**Interviewer:** Were people coming here to learn about the biogas?

**Interviewee:** No, it wasn’t like people from the community were coming to my house to learn. I believe they just wanted people to admire so that they could adopt the same in their houses.

**Interviewer:** Who funded it?

**Interviewee:** I believe it came from water for people.

**Interviewer:** So, who built the digester? Was it people from this community or they brought people to build it?

**Interviewee:** They brought men who worked on it for three weeks.

**Interviewer:** How many were they?

**Interviewee:** It was two guys. They stayed here with us during that time.

**Interviewer:** What was your role?

**Interviewee:** I provided bricks and cattle manure which was used to initiate and boost the reactor before human waste was introduced into the reactor.

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

**Interviewee:** I was very much interested in WASH issues. And I was the first chief in T/A Chapananga to show interest in ensuring that people were constructing pit latrines to eliminate open defecation. This village was an exemplary village when it came to WASH issues, and even now it’s still an exemplary village. So, that’s why they decided to offer me the biogas to be the first demonstration site so that people would appreciate biogas technology.

**Interviewer:** Before this intervention, did you know about biogas?

**Interviewee:** No, I didn’t.

**Interviewer:** Okay, take me through your introduction to biogas?

**Interviewee**: Before commencement of construction work, they told me that human manure can be used to produce energy for cooking and lighting. They also said human manure can be used to make bricks. So, they recommended biogas because it reduces misuse and reliance of trees for firewood.

**Interviewer:** Honestly, I don’t know how human waste can be turned into bricks. What did they say? How does it work?

**Interviewee:** They simply say there is a mechanism which turns human manure into bricks, but they didn’t go into details.

**Interviewer:** What were your expectations?

**Interviewee:** I expected to be able to cook without firewood (Laughs)

**Interviewer:** What else?

**Interviewee:** Nothing else.

**Interviewer:** You have mentioned a number of things that biogas can do. For example, it can be used for lighting, cooking and making bricks. I want to know, what were you told to expect with it on your household?

**Interviewee:** I was told that I would have energy for cooking that I wouldn’t need firewood for cooking.

**Interviewer:** Anything else?

**Interviewee:** (Laughs) nothing else.

**Interviewer:** What kind of training were you given by the installers?

**Interviewee:** No, we didn’t receive any training. I recall asking them to train members of chiefs committee on biogas or to take us to the communities where they have had similar projects to learn from them. They didn’t heed our calls, so it didn’t happen.

**Interviewer:** So, after installation you were told how it operates and how to operate it?

**Interviewee:** Not a bit. They didn’t train us on that. And I believe that’s why it failed. It failed because they just installed it and didn’t give us the expertise to operate it.

**Interviewer:** This is very important – I want to know when they finished building the reactor, what did they say in terms of its operation?

**Interviewee:** That’s where they failed us. We were expecting to have training. We even asked for it so that we could share the information with other people from the community…We had the whole community committee which was present throughout the construction process and we were all hoping that we were going to have training on biogas after installation instead they simply taught us how to open and close the gas.

**Interviewer:** Did they tell you to put water and all that?

**Interviewee:** They said we should be adding water in the pit latrine, and also to feed the digester with manure, two – 20L containers after every 2 to 4 days or so.

**Interviewer:** Did they show you?

**Interviewee:** They simply told us.

**Interviewer:** How prepared to run operate the reactor did you feel you were?

**Interviewee:** We were never able to use it.

**Interviewer:** How long did it work?

**Interviewee:** It could only produce fire for less than 2 minutes – We never used it, we couldn’t even boil water for bathing.

**Interviewer:** How did you meet your energy needs before the intervention? (i.e. cook)

**Interviewee:** We have trees around which we use as firewood.

**Interviewer:** I have seen a number of goats around the house, how did you manage your waste (the feedstock) before the reactor?

**Interviewee:** We were using it as manure and we are still using it as manure.

**Interviewer:** How did the system work after commissioning?

**Interviewee:** It never worked because when we tried to cook or boil water, water couldn’t boil. Only a little flame was coming out and it wasn’t enough to heat anything. Then, we called them; they just said they will come. Since then they have never returned.

**Interviewer:** How much gas was being produced?

**Interviewee:** They didn’t tell us. And whatever it was you couldn’t cook anything with it.

**Interviewer:** So, how did you use the gas?

**Interviewee:** We were told that we could use the gas for cooking but we never used it not even for a single time – It never worked.

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

**Interviewee:** We were told to use cow dung first then add pig or goat manure on top of human waste which was connected to the digester through a pit latrine in order to have an active feed.

**Interviewer:** How many people were using the pit?

**Interviewee:** 6 people.

**Interviewer:** What volume of other waste was you advised to feed the digester?

**Interviewee:** We were told to pit 2 buckets of 20 litres of manure after every 4 days.

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

**Interviewee:** 2 buckets of 20 litres which translated to 40 litres of water.

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

**Interviewee:** We asked to mix manure and water in the bucked the feed the digester, As for the pit latrine, we were told to put water in the pit latrine too.

**Interviewer:** How much water?

**Interviewee:** A bucket after a week or so, I don’t really remember.

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

**Interviewee:** The family was responsible for feeding the digestor.

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

**Interviewee:** They said if it stopped working we should consult them to come and fix the digestor. It was them who were solely responsible for maintenance because we couldn’t do anything because we knew nothing on how to fix it when it malfunctioned. That’s why I asked them to train the community committee members so that they could sort problems when it malfunctioned, unfortunately, it never happened. We knew that if they could train us on little things it would help because it was impractical and tiresome for them to come and fix every single problem.

**Interviewer:** They did tell you anything about maintenance, even the little about maintenance?

**Interviewee:** No, they didn’t.

**Interviewer:** You said the digester didn’t meet your needs? How?

**Interviewee:** They said we could use the digester for cooking and after sometime we would be able to use it for lighting as gas production increases. Unfortunately, we were not even able to use it for cooking.

**Interviewer:** So, taking all into consideration, what challenges did you encounter?

**Interviewee:** As you have seen. The pit latrine is full and blocked because I believe someone disposed a stone in the pit. We are having challenges as can’t manage to empty it that we have just locked it. Also, we feel the dome wasn’t properly constructed because it has cracks which we believe gas escapes from. Besides that masonry work wasn’t done properly because most of it collapsed after a very little time.

**Interviewer:** Why do you feel someone left a stone in the pit and it caused it to block?

**Interviewee:** Initially, when we were using the pit latrine effluent would rise at the outlet and the pit latrine content would depress. We used to collect and use the effluent as manure for farming purpose. But, after some time we saw that the pit content was not depressing, and we couldn’t have effluent at the outlet. That’s when we released that it had blocked.

**Interviewer:** We are halfway through our interview, how long did you use it for before it stopped working?

**Interviewee:** We used it from 2018 to 2020 – from 2018 that’s when we noticed the problems – 2020 that’s when it stopped completely

**Interviewer:** When was it built?

**Interviewee:** 2016

**Interviewer:** Did it work?

**Interviewee:** It worked in a sense that we were using the pit latrine as a toilet. As far as using it as an energy source for cooking were not able to do that from the onset.

**Interviewer:** Oh, technically used never used the biogas for cooking, but for other things like collecting effluent for farming and as a toilet?

**Interviewee:** Exactly.

**Interviewer:** Did you ever try to fix it?

**Interviewee:** When we saw that the dome had cracks, using our common sense, we thought we were not able to get enough gas for cooking because gas was escaping through the cracks. So, I hired a builder who tried to fix the cracks by lining it with cement but it didn’t work, As for the pit latrine, we didn’t do anything because we couldn’t manage to reach the bottom to remove the stone to unblock it. Thus, we just left it, and that’s why it is full and locked today.

**Interviewer:** When did you notice the cracks?

**Interviewee**: It was in 2016, it didn’t take long after they had completed the work. That’s when I first called them to inform them of the problem. They did come and saw the problem. Then, they just said they were going to come again to fix it. Since then they have never come back.

**Interviewer:** Like how long after they completed the work?

**Interviewee:** It was after 3 months.

**Interviewer:** Okay, did you try to follow up after?

**Interviewee:** The installers came to assess the problem and say they were going to return.I tried to follow up with their boss, a certain lady who used to come in a wrap-around cloth, [name redacted]. In the course of following up I learned she left Water For People for another organization. And that’s when I stopped seeing Water For People. As for the white man, he was long gone to his countries, and I never saw him again after he gave me this chair.

**Interviewer:** I’m interested to know, when the people assessed the problem, what did they say was the problem? Or what was causing the problem?

**Interviewee:** They didn’t say what the problem was. They just made it look like a simple problem. But, we released that it was a bigger problem than they made it look. And, we released that they couldn’t fix the problem as it was beyond their expertise, because if it was something they could have managed to fix I’m sure they would have come and solve the problem. And I’m sure when they saw the problem, in their hearts, they knew they couldn’t fix it, and that’s why they never came back.

**Interviewer:** Have you seen something like this (Shown a table intervention)? What do you think about this kind of information and do you think it would have helped you?

**Interviewee:** It would have helped us because it would have guided us on how to solve same of the problems. For example, when they told me how much feed I was supposed to load, I was loading the feedstock as I was told. In the same manner, I would have been following what the table was recommending.

**Interviewer:** We have done almost 80% of the interview; we are going towards the end. How would you describe the current state of the digester?

**Interviewee:** The digestor is not functioning – it’s completely dead.

**Interviewer:** In your opinion, what is the caused it to reach this state?

**Interviewee:** It failed because we were not provided with enough information and skills on how to operate and maintain it. In this community we have village committees, health committee which if were provided with expertise on biogas, I’m sure would have managed to maintain it.

**Interviewer:** Okay, what else?

**Interviewee:** I can say the digestor was not constructed the way it is supposed to be constructed. You can tell this by the simple fact that it never worked from the onset. Imagine, we never used it for cooking.

**Interviewer:** Okay, you said they constructed the digester for 2/3 weeks, and after they finished the work they saw that you couldn’t use it for cooking and it was not producing gas. I would like to know, when they were leaving, what did they say? What happened?

**Interviewee:** We had no previous experience with biogas so when we saw a little gas and also told that after some time more gas was going to be produced, we were convinced that at some point we were going to use to have more gas and eventually use it for cooking. (Laughs)

**Interviewer:** (Laughs) okay, the digester is not working, what are you using for energy i.e. cooking?

**Interviewee:** We are currently using firewood and charcoal.

**Interviewer:** How do you manage your waste (feedstock) now that the reactor isn’t working?

**Interviewee:** we are using manure as fertilizer for farming purposes.

**Interviewer:** It works okay?

**Interviewee:** It works perfectly. And this year we are going to have a dumper yield than previous years.

**Interviewer:** You said it was funded by water for people, by any chance, do you know how much money was involved?

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

**Interviewer:** You said you provided bricks and manure. What else did you contribute anything in kind?

**Interviewee:** Only that – Cement and everything else was provided for by Water For People.

**Interviewer:** What you contributed was it voluntary or mandatory?

**Interviewee:** I was told to contribute those things so that they could start.

**Interviewer:** What do you think could have happened if you failed to contribute such things?

**Interviewee:** I don’t know. They simply told me to contribute such things, and fact that I was interested to have the digester, I contributed without hesitation. Plus, manure wasn’t a problem for me since I raise cattle and goats.

**Interviewer:** (Laughs) and being a chief too you wouldn’t have struggle to siource such things, I guess. How much did it cost you to acquire the bricks?

**Interviewee:** It was provided for by someone from the community.

**Interviewer:** How much labor was involved in terms of digging?

**Interviewee:** They hired 3 people to do the digging work.

**Interviewer:** For how long?

**Interviewee:** They worked for 4 days.

**Interviewer:** Masonry**?**

**Interviewee:** It was 2 people who came from Water For People.

**Interviewer:** For how long?

**Interviewee:** 2 weeks

**Interviewer:** Was there any other work which was done?

**Interviewee:** Yes, people were hired to collect water soaking stones which they used for the outlets – The one I showed you. They said we needed those stones so that we would be able to harvest dry manure as the stones soak up water from the output.

**Interviewer:** How many were involved in this task?

**Interviewee:** It was the same 3 people, and they took some hour to do the work.

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

**Interviewee:** Nothing.

**Interviewer:** They didn’t say anything was sourced from outside the country?

**Interviewee:** No, they didn’t.

**Interviewer:** Did it save you money in terms of energy consumption or anything? Did it help you in anyway?

**Interviewee:** No, it never worked so it didn’t help use in terms of cooking. The only thing that was positive was that they built a pit latrine which was connected to the digester that we manage to use for some time.

**Interviewer:** We are going towards the end, we remaining with 2 questions. What is your opinion of biogas?

**Interviewee:** Biogas is a good thing – It is something I was interest in and I’m still interested in. That’s why when my wife told me you came; I was very much interested in your visit because I hoping that at the end of the day you will be able to rejuvenate the digester so that I can at least use it. Recently, I planned to dismantle the whole thing including the toilet because at the moment I don’t have a toilet since it got full.

**Interviewer:** What fascinated you about biogas?

**Interviewee:** The fact that we can use human manure which many see as waste to produce energy for cooking and lighting is very interesting. Also, the fact that, we you can use it for cooking without using firewood and charcoal is very significant in terms of curbing deforestation in the community.

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

**Interviewee:** I don’t know any energy intervention that can use human waste to produce energy for lighting and cooking, so I’m limited of choices.

**Interviewer:** (Laughs) this is the end of our interview. Thanks a lot the interview.

**Interviewee:** Welcome.